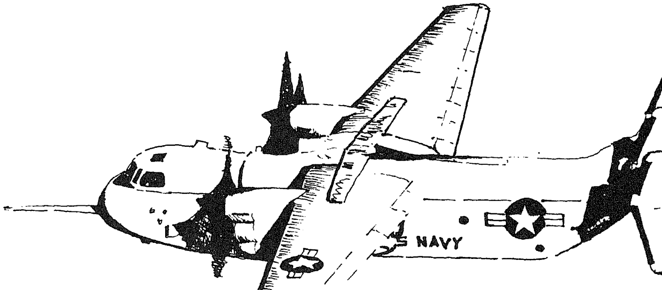
PERSONNEL
QUALIFICATION STANDARD
FOR
C–2A AIRCRAFT

QUALIFICATION SECTION 5
ELECTRICAL



his responsibilities to his sh
and his purpose in fighting."

INTRODUCTION

This publication has been written with one gui
cept in mind; that "every sailor wants to do a goo
will perform that job well, if he is (1) sufficien
vated, (2) properly instructed as to the scope and
of his duties and, (3) has the depth of knowledge
fulfill his responsibilities." This Qualification
will assist you by providing a systematic approach
the material that is essential to your becoming a
ductive member of the "combat-ready qualified Navy

A brief explanation of the features of the Qua
Standard will help you understand how to use it.

First, do not let yourself become concerned wi
thickness of the booklet and the quantity of words
A broad but detailed knowledge of a subject is com
many short answers to many types of questions. It
lot of words to ask these simply answered question
manner.

The format of the Qualification Standard and i
system forms a definite educational pattern. Howe
pattern DOES NOT LIMIT either the instructor or th
to any sequence, method or technique of instructio

The Qualification Standard has the following f
subdivisions:

100 Series - THEORY
200 Series - SYSTEMS
300 Series - WATCHSTATIONS
400 Series - QUALIFICATION CARDS

100 Series - THEORY

This section of the Qualification Standard spe
theory background that will be required as prerequ
commencement of study in the specific equipment(s)
this booklet is written. Normally, you would have
fundamentals during the school phase of your train
you have not been to school, the requirements are
and referenced to aid you in a self-study program.

is broken down into functional sections. These functional sections can be studied and your achievement tested either orally or in writing in a reasonable amount of time. Words such as subassembly, drawer, unit, cabinet, etc., have been deliberately avoided because they more specifically refer to construction features deemed necessary by the manufacturer. "Physical boundaries" are more often distinctly different from the "functional boundaries"; for example, a system may have a lever, valve, switch, or antenna functionally connected to it but physically located in a different space. For a complete understanding, all functional parts must be considered in the study of the system.

In the 200 series there is a pattern to the numbers to the right of the decimal point as follows:

.1 At this point you will always be asked to explain the function of the system.

.11 Here you will be asked to draw a simplified version of the system from memory

.12 Refer to a standard print. (You will be asked to use either the simplified version or the standard print as a reference while studying the system.)

.2 SYSTEM COMPONENTS - GENERAL
The system's components are listed in this section and you will be told what you must learn about each component. Please note the definition of "component" is not restricted to a single piece of hardware with a single federal stock number. It may be either a single resistor or an entire pump assembly. Note also that component .29 is followed by component .210 vice .30. This is done to indicate the tenth item in the .2 list, etc.

.3 COMPONENT PARTS
This section breaks down the components into their component parts. Only those component parts essential to understanding are listed. Others, such as mounting bolts, brackets and chassis are not included.

.4 PRINCIPLES OF OPERATION
Up to this point, the system has been considered from

a few are vital. This section asks major parameters that you must be a immediately call to mind while oper and maintaining the equipment.

.6 SYSTEM INTERRELATIONS

Up to this point your thinking directed to the system and its inte operations. Now your thinking will expanded to include how this system the total picture: (how this syste ted by the operation of other syste how other systems are affected by t of this system).

.7 SAFETY PRECAUTIONS

Here you will be called upon to any special safety precautions unic system. These safety precautions a to personnel and/or equipment.

300 Series - WATCHSTATIONS

This series includes the procedures you in order to properly operate and maintain the ec not let your thinking become limited to the conc stand watch only if your name is on a watch bill Qualification Standard usage, you are considered your watchstation anytime you face the equipment your intelligence to cause it to perform correct to analyze malfunctions. While all possible prc not be detailed in this section, the procedures can reasonably be expected to complete are cover OPERATOR and TECHNICIAN watchstation. Each is e detail as follows:

(OPERATOR WATCHSTATION)

.1 OPERATING INSTRUCTIONS

As a result of your study of the 20 of the Qualification Standard, you know the systems do, how they do it, and mar aspects of their operation. You have s a lot of time acquiring the necessary k all of which is of little value to you the Navy unless you are able to use it perform in an efficient manner. In thi you will be directed to perform and di

.2 NORMAL OPERATIONS

Here you will be directed to describe those conditions that exist that indicate the system is functioning properly.

.3 ABNORMAL CONDITIONS that could lead to EMERGENCIES and/or CASUALTIES

An abnormal condition is the first stage of a sequence of events that will lead to an emergency and/or casualty. You must be able to recognize the symptoms of these abnormal conditions and you must also know what immediate corrective action to take. In this section you will discuss the more pertinent of the abnormal conditions.

.4 EMERGENCIES and/or CASUALTIES

In this section you will discuss and/or perform when practicable the procedures for limiting the damage from the emergencies and casualties most pertinent to the watchstation.

.5 INFREQUENT and/or ABNORMAL OPERATIONS

This area is devoted to the discussion and/or performance when practicable of those procedures that are considered too dangerous, too time consuming, or that occur too infrequently to be made mandatory performance items.

(TECHNICIAN WATCHSTATION)

.1 MAINTENANCE INSTRUCTIONS

In studying to be a technician, your operator knowledge will be expanded to include the maintenance of the equipments you have operated. In this section you will be directed to discuss and perform the routine maintenance checks, tests, alignments, repair, replacements, etc., that keep the equipment and machinery assigned to you in a "combat ready" condition.

.2 INFREQUENT and/or ABNORMAL MAINTENANCE OPERATIONS

As is true of the operator watchstation, there are infrequent and/or abnormal maintenance operations that are too time consuming to make them mandatory performance items. In this section you will be asked to discuss and perform those that upon completion of all sections you will be able to bo operate and maintain the equipments at your watchstation(s In practice however, where you start in the standard will in part be determined by the needs of the command. Therefo depending upon the immediate need for your services, you w be given a qualification card that will tell you which sect you must complete first.

The qualification cards reference the items you must complete in the 100, 200 and 300 Series of the Standa The cards are your guide, reference, and record of achiever The qualification cards are packaged separately from the st and should be carried by you at all times to permit you to take advantage of every opportunity to complete the require

You have been given the complete Qualification Standard in the belief that the truly conscientious sailor will make the extra effort to become fully qualified in al respects at the earliest opportunity.

That is the story of the QUALIFICATION STANDARD.

Now, TURN TO - GOOD LUCK!

BLOCK DIAGRAM	A drawing of a system using blocks components to show the relationsh components.
CASUALTY	An event or series of events in p during which equipment damage and/ personnel injury has already occu The nature and speed of these eve such that proper and correct proc steps will only serve to limit da and/or personnel injury.
CLASSIFICATION AND/OR TYPE	To give the type of classificatio various equipment, i.e., a. Check valve-swing, stop, etc. b. Valve-solenoid, manual, etc.
COMPONENT	The major units which when suitab connected comprise a system.
COMPONENT PART	The integral part of a component.
CONTROL POWER	Power used to control or operate component or component part.
CONTROL SIGNAL	A signal used to activate control circuitry or indication, for exam The signal from a pressure switch.
EMERGENCY	An event or series of events in p gress which will cause damage to ment unless immediate, timely and correct procedural steps are take
FAIL	1. The loss of control signal or power to a component. 2. The breakage or breakdown of component or component part.
FAIL POSITION	The operating or physical positio which a device will go upon loss its actuating electrical, electro pneumatic, or hydraulic control s
FUNCTION	To perform the normal or characte action of anything, or special du

	but may be used to control the ope ating sequence of components.
MONITORING POINT	The physical location at which any indicating device displays the val of a parameter at some control sta
ONE LINE SCHEMATIC DIAGRAM	A drawing of a system using only o line to show the tie-in of various components, i.e., the three conduc needed to transmit 3-phase power a represented by a single line.
SIMPLE SKETCH	A simplified pictorial illustratio of a system.
OPERATING CHARACTERISTICS	The combination of a parameter and its setpoints.
PARAMETERS	A variable such as temperature, pressure, flow rate, voltage, current, frequency, etc., which ma be indicated, monitored, checked o sensed in any way during operation or testing.
PROTECTIVE FEATURE	A feature of a component or compon part designed to protect a compone or system from damage.
SENSING POINT	The physical and/or functional poi a system at which a signal may be ted, monitored or may cause some a matic operation to result.
SETPOINT	The numerical value of a parameter which: a. An alarm is actuated. b. Operator action is required. c. Proper operation ceases and da may occur.
SPECIAL FUNCTION	A unique service performed by the under discussion usually above and beyond the direct design intent of system. These special functions b

	cal publication.
SYSTEM	The major functional section of a installation selected for individ attention.
SYSTEM INTERRELATION	Specific individual operations in system effecting the operation in another system under normal condi which are not fully described in gency or casualty procedures or i functional discussion of the syst
WATCHSTATION	Duties, assignments or responsibi which an individual or group of i may be called upon to carry out. necessarily a normally manned pos with a "watchbill" assignment.

THEORY

5101	Electrical Theory
5102	Electronics Theory
5103	Tubes and Transistor Theory
5104	Magnetic Devices
5105	Motors and Generators
5106	Electrical and General Safety Precautions

SYSTEMS

5201	AC Power Generation System
5202	AC Power Distribution System
5203	DC Power Supply System
5204	DC Power Distribution System
5205	Emergency Generator System
5206	Exterior Lighting System
5207	Cockpit Lighting System
5208	Cargo Compartment Lighting System
5209	Air Data Computer System
5210	Automatic Flight Control System
5211	MA-1 Compass System
5212	Caution and Advisory Lights System
5213	Pitot and Static Pressure Instrument System
5214	Maximum Rudder and Pitch Feel Indicating System
5215	Angle of Attack Indication System
5216	Wheels and Flaps Position Indicating System
5217	Trim Position Instrument System
5218	Utility Instruments System
5219	Engine Instrument System
5220	Turbine Inlet Temperature (TIT) Indication System
5221	Engine Fire Detection System
5222	Low Fuel Level Warning System
5223	Flight Instrument System
5224	Emergency Fluid Shutoff system
5225	Engine Ignition and Fuel Control System
5226	Engine Oil Cooling Electrical Control System
5227	Engine Fuel Boost Pump Control System
5228	Fueling and Fuel Dump Electrical System
5229	Propeller Feathering Elecrical Control System
5230	Propeller Synchronizing Electrical Control System
5231	Air Conditioning Electrical System
5232	Cabin Pressurization System
5233	Side Window Defogging Electrical Control System
5234	Windshield and Sidepanel Anti-icing Electrical Control Sy
5235	Propeller Anti-Icing Electrical Control System
5236	Engine and Air Inlet Duct Anti-Icing Electrical Control S

5240 Standby Trim System
5241 Normal and Emergency Flap Electrical Control System
5242 Catapult Extender Electrical System
5243 Cargo Doors Electrical System
5244 Auxiliary Power Plant (APP) Electrical System

WATCHSTATIONS

5301 Instrument/Electrical Organizational Maintenance Technicia

5101 ELECTRICAL THEORY

This section identifies the terms, principles, and laws that will give you a foundation of understandi of Electrical Theory upon which a working knowledge can be built. The following references were used:

a. Basic Electricity NAVPERS 10086
b. Aviation Electrician 3 & 2 NAVPERS 10348

5101.1 ELECTRON THEORY AND CURRENT FLOW

.11 Define matter.
.12 Describe the composition of matter in terms of atom structure.
.13 Describe and compare the atomic structure of conduc semi-conductors, and insullators in terms of free e and energy levels.
.14 Describe and compare current flow and random electr movement in a conductor.

5101.2 VOLTAGE

.21 Define voltage.
.22 Explain the various methods of producing a potentia
.23 Discuss several applications of each method of prod a potential.

5101.3 BASIC CIRCUIT ANALYSIS

.31 Define each of the following terms and discuss fact influencing them:
    a. Resistance
    b. Impedance
    c. Inductance
    d. Inductive reactance
    e. Capacitance
    f. Capacitive angle
    g. Phase angle
    h. Power
.32 Discuss Ohm's law problems using the terms voltage, current, impedance, power, and phase angle.
.33 Explain the importance of Kirchoff's Law in circuit analysis.
.34 Explain the relationships between peak, average, an effective values of voltage and current.

5101.4 ELECTRICAL SYMBOLS

.41 Demonstrate the ability to identify circuit components by drawing the symbols for a:
  a. Resistor
  b. Capacitor
  c. Inductor
  d. Ground
  e. Circuit breaker
  f. Fuse
  g. Lamp
  h. Battery
  i. Rectifier
  j. Variable resistor
  k. Transformer
  l. Relay

.42 Explain the values of the standard color coding for th following components:
  a. Resistors
  b. Capacitors
  c. Small power transformers

5101.5 SCHEMATIC DIAGRAM

.51 Demonstrate the ability to read and understand schematic diagrams by:
  a. Explaining the difference of a schematic diagram a compared to a wiring diagram.
  b. Locating a circuit input signal
  c. Tracing an input signal through a simple circuit t the output
  d. Locating bias(s) and/or feedback(s) in a simple ci

5101.6 TEST EQUIPMENT

.61 Explain the operating principle of the D'Arsonval galv movement.

.62 Explain the fundamental meter movement contained withi the following types of meters:
  a. Voltmeter
  b. Ammeter
  c. Ohmmeter

.63 Explain the purpose of meter shunts and when they are u

.64 Explain the purpose of instrument transformers and whe they are used.

5101.6 TEST EQUIPMENT (CONT'D)

.65 Describe the service use, application and physical circu
connection of the following test equipments:

a. Multimeter
b. Megger
c. Frequency meter
d. Oscilloscope

5102 ELECTRONICS THEORY

This section identifies the terms, principles, and laws that will give you a foundation of understanding of Electronics Theory upon which a working knowledge can be built. The following references were used:

a. Basic Electronics NAVPERS 10087
b. Electronics Installations NAVSHIPS 0967-000-0120
c. Fundamentals of Electronics NAVPERS 93400

5102.1 ELECTRONIC (CIRCUITRY)

.11 Demonstrate a knowledge of biasing by:
  a. Naming the two most common methods of biasing.
  b. Drawing schematic diagrams illustrating each of the two common types of biasing.
  c. Describing the four classes of amplifier operation.

.12 Demonstrate a knowledge of rectifier circuitry by:
  a. Drawing a basic half wave rectifier circuit indicating the direction of current flow and resultant waveform for a cycle of supply voltage.
  b. Drawing a fullwave rectifier circuit indicating the direction of current flow and the resultant waveform for a cycle of supply voltage.
  c. Listing the advantages of a full wave rectifier.
  d. Drawing a bridge rectifier circuit indicating the direction of current flow and the resultant waveform for a cycle of supply voltage.
  e. Stating the advantages of a bridge rectifier circuit.

.13 Demonstrate a knowledge of the methods of coupling amplifiers by:
  a. Describing the need for coupling of two or more amplifier stages.
  b. Describing three methods of cascading amplifiers.
  c. Illustrating the cascading of amplifier stages using each of the following methods of coupling:
    1. Resistive capacitive
    2. Transformer
    3. Direct
    4. Impedance

.14 Demonstrate a knowledge of impedance matching by:
  a. Explaining where matching devices are required.
  b. Describing the advantages of an impedance matching transformer.

.15 Trace a signal through cascaded amplifiers and compare the waveform of the output in respect to the input waveform.

5102.17 Describe the operation of the following circuits in terms of control action, output(s) and current path(s):

- a. Driver stages
- b. Paraphase amplifiers
- c. Oscillators
- d. Pulse counters
- e. Multivibrators

.18 Describe how the following circuits operate and what function they perform in operating:

- a. Amplifier
- b. Rectifier
- c. Oscillator
- d. Multivibrators
- e. Modulator
- f. Demodulator
- g. Radio frequency amplifier
- h. Positive feedback
- i. Negative feedback
- j. Phase correcting
- k. Frequency controlling
- l. Pulse counter

.19 Explain the operation of Colpitts and Hartley oscillators for one complete cycle of oscillation by indicating:

- a. Magnetic fields
- b. Direction of current flow
- c. Charging and discharging of capacitors.

.110 Describe the methods of changing the frequency of an oscillator.

.111 Trace the charge and discharge paths of capacitors in each of the following circuits:

- a. Oscillators (Colpitts and Hartley)
- b. Amplifiers
- c. Multvibrators
- d. Modulators
- e. Demodulators
- f. Radio frequency amplifier

TUBES and TRANSISTOR THEORY

This section identifies the terms, principles and laws that will give you a foundation of understanding of Tubes and Transistor Theory upon which a working knowledge can be built. The following references were used:
a. Basic Electronics NAVPERS 10087
b. Fundamentals of Electronics NAVPERS 93400

1 TUBE CIRCUITS

11 Demonstrate a knowledge of tubes by describing their construction, and explaining the purpose of each element and illustrating the schematic symbols for each type of tube:
    a. Diode
    b. Triode
    c. Tetrode
    d. Pentode
    e. Beam power
    f. Voltage regulator
    g. Thyratron
    h. Cathode ray
12 Identify and describe the function(s) of the following components in an electronic tube circuit:
    a. Screen grid resistor
    b. Screen grid capacitor
    c. Grid resistor
    d. Cathode resistor
    e. Plate load resistor
    f. Coupler resistor
    g. Coupling capacitor
    h. Decoupling capacitor
    i. Cathode capacitor
13 Demonstrate a knowledge of control grid effect on basic tube operation b
    a. Defining bias voltage and stating the reference point for measuring grid potential
    b. Defining the terms "saturation" and "cutoff" as used with tube operation.
    c. Explaining the effect of grid voltage variations on tube current.
14 Describe the means used to cause variations in plate voltage when a tube is used as an amplifier.
15 Describe the action of the cathode resistor in developing self bias.
16 Plot an EC-IB curve for the following classes of amplifier operation when provided with plate current and bias voltage values:
    a. Class A
    b. Class B
    c. Class C

03.2 FILTER NETWORKS (CONT'D)

- .23 Compare the voltage drops across each of the components in a filter network.
- .24 Describe the effect of the following filter networks with a half wave and full wave rectifier output for any given frequency.
  - a. Resistor capacitor (RC)
  - b. Capacitor
  - c. Band pass
  - d. Band eliminator
  - e. "L" section
  - f. "Pi" section

103.3 SEMI CONDUCTOR DEVICES

- .31 Demonstrate an understanding of semi-conductors by:
  - a. Stating the purpose of "doping" a semi-conductor
  - b. Describing how the crystal lattice structure is formed in terms of covalent bonding
  - c. Describing the effect of thermal agitation on electrons in the covalent bond.
  - d. Explaining why germanium and silicon as intrinsic crystals are poor conductors
- .32 Explain "P" type and "N" type semi-conductors by describing:
  - a. The majority and minority current carriers
  - b. The impurities used in their construction
  - c. The forward and reverse bias and its effect on the majority current carriers.
  - d. The depletion region of the PN juction in terms of potential charge and absence of current carriers.
- .33 Explain the use of bias in semi-conductors in terms of:
  - a. Its effect on the barrier potential
  - b. Proper bias necessary for semi-conductor operation
  - c. The effect of breakdown voltage (avalanching) on the crystal lattice structure of a diode
  - d. Current flow through the zener diode with reverse bias applied.
- .34 Draw a schematic diagram of the following semi-conductors with proper bias applied:
  - a. PN diode
  - b. Transistor
  - c. Silicon control rectifier
  - d. Unijunction transistor
  - e. Zener diode
- .35 Use the characteristic curve of a diode and indentify the following:
  - a. Zener voltage
  - b. Zener current
  - c. Forward current

3.3 SEMI-CONDUCTOR DEVICES (CONT'D)

.36 Explain the use of a zener diode in shunt regulator circuits by:
  a. Drawing a schematic diagram of a simple shunt voltage regulator
  b. Explaining and describing the need for a voltage regulating circuit
  c. Describing the effect a zener diode has on load voltage during changes in source voltage.
  d. Describing the action of a double anode zener voltage regulator circuit.

.37 Draw a schematic diagram of the following type circuit configuration using either a NPN or PNP transistor and single battery bias:
  a. Single ended power
  b. Complimentary symmetry (push-pull)
  c. Common collector
  d. Common emitter
  e. Common base

.38 Describe the phase relationship and the voltage and current amplitud the output signal in respect to the input signal of the following configurations:
  a. Single ended power
  b. Complimentary symmetry (push-pull)
  c. Common collector
  d. Common emitter
  e. Common base

.39 List the operational characteristics for each of the three basic transistor configurations.

.310 Explain the action of the following stabilizers during changes of temperature:
  a. Diode stabilizer
  b. Zener diode stabilizer
  c. Thermistor stabilizer
  d. Resistor stabilizer

.311 Describe the following terms as they apply to semi-conductors:
  a. Recombination current
  b. Drift current
  c. Diffusion current

.312 Define the following terms as they apply to transistor circuits:
  a. ICO
  b. ALPHA
  c. BETA
  d. IEO

.313 Discuss inter-element capacitance and describe its circuit compensation.

.314 Discuss frequency response by describing its limitations and circuit compensation.

04 MAGNETIC DEVICES

This section identifies the terms, principles, and laws that will give you a foundation of understanding of Magnetic Devices upon which a working knowledge can be built. The following references were used:

a. Fundamentals of electronics NAVPERS 93400
b. Basic Electricity NAVPERS 10086
c. Aviation Electrician NAVPERS 10348
d. Navy Synchros NAVORD 1303

04.1 MAGNETIC THEORY

.11 Define magnetism.
.12 Demonstrate a knowledge of magnetic cores by:
  a. Naming and describing the main types of magnetic cores.
  b. Describing the losses in an iron core material.
  c. Explaining domain alignment in magnetized and unmagnetized materials.
.13 Describe the effect upon the following conditions caused by changes in permeability of a coil's core material:
  a. Current flow
  b. Voltage drop
  c. Impedance
  d. Inductance
  e. Inductive reactance
.14 Demonstrate a knowledge of the Hysteresis loop of alternating flux in a magnetic core by explaining:
  a. Residual flux
  b. The initial curve
  c. Coercive force
.15 Demonstrate a knowledge of a current carrying coil by:
  a. Explaining how the polarity of the magnetic field is determined using the left hand rule.
  b. Explaining the factors affecting flux density and direction.
  c. Explaining self inductance in relation to flux linkage and counter electromotive force.
  d. Explaining mutual inductance in relation to flux linkage and count electromotive force.
  e. Explaining the relationship between self inductance and mutual ind

04.2 TRANSFORMERS

.21 Define:
  a. Magnetomotive force
  b. Ampere turns
  c. Self induction
  d. Mutual induction
  e. Field intensity
  f. Flux density
  i. Hysteresis
  j. Eddy currents
  k. BH curve
  l. Residual flux
  m. Coercive force
  n. Reluctance

5104.2 TRANSFORMERS (CONT'D)

.22 Name the factor necessary to cause an induced voltage.

.23 Name the major component parts of a transformer and describ function of each.

.24 Describe the physical construction and application of the f type transformer cores:
  a. Closed core
  b. Shell core
  c. Open core

.25 Explain the function of magnetizing current in a transforme its source.

.26 Explain how magnetizing current affects the operation of a former from no load to a full load condition

.27 Explain how and why changes in the following affect a trans
  a. Voltage primary
  b. Current primary
  c. Frequency primary
  d. Impedance primary
  e. Turns primary to turns secondary

.28 Explain how variation in load on the secondary affects the of current in the primary.

.29 Explain how single phase transformers are phased out for ad subtractive polarity.

.210 Explain how three single phase transformers may be connecte electrically for three phase power supply for the following connections:
  a. Wye:Delta
  b. Delta:Wye
  c. Delta:Delta
  d. Wye:Wye
  e. Open Delta:Open Delta

.211 Explain how high and low voltage leads are marked for ident

.212 Describe the physical construction, electrical connections, of operation, and application of the following type transfo
  a. Current instrument
  b. - Autotransformer
  c. Potential instrument
  d. Isolation transformer

5104.3 SYNCHRO AND SERVO CIRCUITS

.31 Demonstrate a knowledge of synchro units by:
  a. Distinguishing between the application of torque and co in Synchro Systems
  b. Describing the typical construction and function of the
    1. Transmitter
    2. Receiver
    3. Control transformer
    4. Differential
  c. Drawing a schematic diagram of a synchro showing coil n their position in respect to each other.
  d. Explaining how the voltage induced into the secondary c

04.3 SYNCHRO AND SERVO CIRCUITS (CONT'D)

- .32 Draw a schematic diagram of a transmitter and receiver in a circuit and indicate the following:
  - a. The phase of induced voltages with both rotors in the same position.
  - b. The induced voltage and the resultant current flow when the transmitter is displaced from the receiver.
  - c. Show the direction the receiver will rotate.
- .33 Draw a schematic diagram showing a differential in the synchro circuit used for addition and subtraction and show its operation.
- .34 Demonstrate a knowledge of control transformer (CT) operation in a circuit by:
  - a. Drawing a schematic diagram of a CT with the rotor properly positioned for zero induced voltage.
  - b. Drawing a schematic diagram with the CT connected properly for its output to feed an amplifier.
  - c. Describing how the CT signal is derived and the manner in which it is nulled.
  - d. Explaining the function of the capacitors used with the CT and illustrate their connection in a CT circuit.
- .35 Demonstrate a knowledge of Servo System operation by:
  - a. Distinguishing between an open and a closed Servo System
  - b. Drawing a schematic diagram of a simple Servo System of the open and closed loop type.
- .36 Explain the method or methods of electrically zeroing a Synchro System

04.4 MAGNETIC AMPLIFIER

- .41 Demonstrate a knowledge of the basic operation of a saturable reactor by:
  - a. Describing how core saturation affects the AC current flow in the load winding.
  - b. Explaining how DC current in the control winding regulates the impedance of the reactor
  - c. Explaining how the impedance seen by the road circuit is changed by varying control current
  - d. Describing the methods used to suppress AC current induced into the control winding by the load winding.
- .42 Demonstrate a knowledge of basic magnetic amplifier operation by:
  - a. Describing the two principal ways self saturation is accomplished in magnetic amplifiers.
  - b. Describing the effect of a rectifier in the magnetic amplifier load circuit.
  - c. Describing the effect a bias winding has on load current during quiescent condition.

5104.4 MAGNETIC AMPLIFIER (CONT'D)

.43 Define the following terms as applied in magnetic amplifie
  a. Firing point
  b. Gating half-cycle
  c. Reset half-cycle

.44 Explain the operating principles of the following:
  a. Half-wave magnetic amplifier
  b. Full-wave magnetic amplifier
  c. AC reset magnetic amplifier
  d. Saturable transformer
  e. Push-pull magnetic amplifier
  f. Duodirectional polarized circuit

.45 Describe a magnetic amplifier circuit.

This section identifies the terms, principles, and laws that wi
you a foundation of understanding of Motors and Generators Theo
which a working knowledge can be built. The following referenc
used:

a. Basic Electricity NAVPERS 10086
b. Aviation Electrician 3 & 2 NAVPERS 10348

5105.1 MOTORS

.11 Discuss the following:
  a. Transformer action
  b. Motor action
  c. Torque
  d. Speed regulation
  e. Speed control
.12 Name the major parts of a motor and describe their purpose.
.13 Discuss motor action.
.14 Describe the physical contruction, theory of operation, and app
for the following types of motors:
  a. Shunt
  b. Series
  c. Dual Speed
  d. Single cage induction motor
.15 Describe how direction of motor rotation is reversed.

5105.2 GENERATORS

.21 Name the major parts of a generator and describe their purpose.
.22 Discuss AC generation and EMF magnitude produced in a typical A
generator.
.23 Explain how the EMF produced in a typical AC generator is contr
.24 Describe the physical and electrical construction of the armatu
field of an AC generator to produce a three phase output.

cautions upon which a working knowledge can be built. The following references were used:

a. First Aid NAVPERS 10081
b. Basic Electricity NAVPERS 10086
c. Local Command safety instructions

106.1 BODY RESISTANCE

.11 Explain how various levels of potential have an effect on current fl through the body.
.12 Explain how variations in environmental conditions have an effect on resistance.

106.2 ENERGIZED CIRCUITS

.21 Explain the use of insulating material and how it is used to protect personnel.
.22 Explain the proper procedure to be followed prior to working on electrical equipment.
.23 Explain the purpose and use of danger tags.
.24 Explain the proper procedure and precautions involved in instrument removal and installation.

106.3 ELECTRICAL FIRES

.31 Explain the procedures which are to be followed when combating an electrical fire.
.32 State the agents and their proper method of application used in figh electrical fires.

106.4 CLEANING AGENTS

.41 Explain the desirable characteristics of a good cleaning agent for electrical equipment.
.42 List the agents are desirable for cleaning electrical equipment.

106.5 FIRST AID

.51 Explain the procedures for removing a victim from an energized circu
.52 Explain the proper treatment for electrical shock victims.
.53 Demonstrate the proper procedure for the preferred method of artific respiration and cardiac massage.
.54 Explain the proper procedure for the treatment of burns and wounds.

106.6 LINE AND FLIGHT DECK SAFETY

.61 Demonstrate an understanding of line and flight deck safety by expla

201.1 Explain the function(s) of the AC POWER GENERATION SYSTEM as stated i
NAVAIR 01-85WBB-2-6.

.11 Refer to a standard print of this system during the rest of this disc

201. SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect t position in the system and the reason-s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List the protective device(s) for this component.
G. Discuss the protection provided by this component.
H. List the ratings of this component.
I. List the major loads supplied by this component.

	A	B	C	D	E	F	G	H	I
.21 AC generator	X	X	X	X	X	X	X	X	X
.22 Voltage regulator	X		X		X	X	X		
.23 Supervisory panel	X		X		X	X	X		
.24 Differential current transformer	X		X		X	X	X		
.25 Alternator control panel	X		X		X	X	X		
.26 External power receptacle	X	X	X	X				X	X

201.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within th component.
C. Describe the physical location of this component part within the component.
D. Explain how the component part carries out its function.
E. List or describe the sources of power to this component part.

	A	B	C	D	E
.31 AC generator					
a. Permanent magnet generator	X	X	X	X	X
b. Armature	X	X	X	X	
c. Field	X	X	X	X	

5201.3 COMPONENT PARTS (CONT'D)

		A	B	C
.32	Voltage regulator			
	a. Voltage reference circuit	X	X	
	b. Error sensing circuit	X	X	
	c. Pulse width modulator circuit	X	X	
	d. Amplifier circuit	X	X	
	e. DC power supply circuit	X	X	
	f. Buildup circuit	X	X	
.33	Supervisory panel			
	a. CP over/under voltage and lockon circuit	X	X	
	b. CP off-reset sensing	X	X	
	c. CP anti cycle binary circuit	X	X	
	d. Generator contractor reset amplifier	X	X	
	e. CP undervoltage sensing and time delay	X	X	
	f. CP power ready sensing circuit	X	X	
	g. CP contractor reset amplifier	X	X	
	h. CP voltage sensing circuit	X	X	
	i. Underfrequency time delay and lock on circuit	X	X	
	j. CP contractor control relay trim amplifier	X	X	
	k. CP power supply	X	X	
	l. Underfrequency circuit	X	X	
.34	Alternator control panel			
	a. Left generator switch	X	X	X
	b. Right generator switch	X	X	X
	c. Emergency generator main selector switch	X	X	X
	d. DC power bus tie switch	X	X	X

5201.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation
by describing:

.41 How the initial generator voltage is obtained.
.42 How generator terminal voltage is regulated.
.43 How undervoltage, underfrequency, overvoltage, and diffe
current is sensed.
.44 How improper phase sequence is caused.

5201.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensin
B. Show or describe the physical location at which the
is displayed for monitoring.
C. Name the alarm and state the numerical value of the
which the alarm occurs.
D. State the setpoint(s).

5201.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the T-56 engine

B. Describe the effects on the following systems due to the op
   of this system:
   1. AC Power Distribution System

5201.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

5202 AC POWER DISTRIBUTION SYSTEM

5202.1 Explain the function(s) of the AC POWER DISTRIBUTION SYSTEM as stated in NAVAIR 01-85WBB-2-6.

.11 Refer to a standard print of this system during the rest of this dis

5202.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect t position in the system and the reason(s) for its location in thi position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List the protective device(s) for this component.
G. Describe the "fail" position of the component on loss of power a the reason(s) it fails in this position.
H. Describe the physical location of the sensing points for the com
I. List the ratings of this component.
J. List the major loads supplied by this component.
K. Explain how the component carries out its function.

		A	B	C	D	E	F	G	H	I
.21	Generator main line contactors	X	X	X	X	X	X	X		X
.22	Generator bus tie contactor	X	X	X	X	X	X	X		X
.23	Right generator bus	X	X	X	X	X	X			
.24	Left generator bus	X	X	X	X	X	X			
.25	AC essential bus	X	X	X	X	X	X			
.26	Emergency power control relay	X	X	X	X	X	X	X	X	X
.27	Instrument transformer	X	X	X	X	X	X			X

5202.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Explain how the component part carries out its function.
C. List or describe the sources of power to this component part.

		A	B	C
.31	Generator main line contactors			
	a. External coil	X	X	X

5202.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operatio
by describing:

.41 How power from the right and left generators is route
contactor.

.42 How the bus tie contactor is used to cross tie the le
generator buses.

5202.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sen

B. State the setpoint(s).

C. State the reason for the setpoint(s) in terms of
operating above or below them.

		A
.51	Generator main line contactor control voltage	X
.52	Bus tie contactor control voltage	X

5202.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the fol
   1. Loss of either AC generator

B. Describe the effects on the following systems due
of this system:
   1. DC Power Supply System

5202.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this sy

3 DC POWER SUPPLY SYSTEM

3.1 Explain the function(s) of the DC POWER SUPPLY SYSTEM as stated in NAVAIR 01-85WBB-2-6.

.11 Refer to a standard print of this system during the rest of this discus

3.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. List or describe the source(s) of control signal(s).
E. List the protective device(s) for this component.
F. List the interlocks associated with this component.
G. Describe the "fail" position of the component on loss of power and the reason(s) it fails in this position.
H. List the ratings of this component.
I. List the major loads supplied by this component.
J. List the positions and function(s) of each of the designated relays

		A	B	C	D	E	F	G	H	I	J
.21	Transformer rectifier	X	X	X	X	X	X		X	X	
.22	Transformer rectifier power relay	X	X	X	X			X			X
.23	Transformer rectifier fail relay	X	X	X	X			X			X
.24	DC bus tie relay	X	X	X	X			X			X
.25	Emergency power control relay	X	X	X	X			X			X

3.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Explain how the component part carries out its function.
D. List or describe the sources of power to this component part.

		A	B	C	D
.31	Transformer rectifier				
	a. Transformer section	X	X	X	X
	b. Rectifier section	X	X	X	X

5203.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operat by describing:

- .41 How the transformer rectifiers receive their power.
- .42 How the transformer rectifier power relay is energi
- .43 How the emergency generator power control relay is
- .44 How the transformer rectifier fail relay is energiz
- .45 How the DC bus tie relay is energized.

5203.5 MAJOR PARAMETERS

A. Show or describe the physical location of the s
B. State the setpoint(s).
C. State the reason for the setpoint(s) in terms o
   operating above or below them.

- .51 Transformer rectifier output voltage
- .52 Transformer rectifier output current

5203.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the f
   1. Loss of AC power
B. Describe the effects on the following systems d
   of this system:
   1. DC Power Distribution System

5203.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this

5204 DC POWER DISTRIBUTION SYSTEM

5204.1 Explain the function(s) of the DC POWER DISTRIBUTION SYSTEM as stated in NAVAIR 01-85WBB-2-6.

.11 Refer to a standard print of this system during the rest of this disc

5204.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Show or describe the actual physical location of this component.
C. Describe the sources of power.
D. List or describe the source(s) of control signal(s).
E. List the protective device(s) for this component.
F. List the major loads supplied by this component.

		A	B	C	D	E	F
.21	Right transformer rectifier bus	X	X	X	X	X	X
.22	Left transformer rectifier bus	X	X	X	X	X	X
.23	Warning bus #1	X	X	X	X	X	X
.24	Warning bus #2	X	X	X	X	X	X
.25	Monitor bus	X	X	X	X	X	X
.26	Right engine bus	X	X	X	X	X	X
.27	Left engine bus	X	X	X	X	X	X

5204.3 COMPONENT PARTS

A. There are no component parts in this system to be discussed.

5204.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this syste describing:

.41 How the right transformer rectifier bus receives power.
.42 How the #1 warning bus receives power.
.43 How the right engine bus receives power.
.44 How the monitor bus receives power.

5204.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be discussed.

5204.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Loss of DC power supply

5 EMERGENCY GENERATOR SYSTEM

5.1 Explain the function(s) of the EMERGENCY GENERATOR SYSTEM as stated in NAVAIR 01-85WBB-2-6.

.11 Refer to a standard print of this system during the rest of this discuss

5.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the modes of control.
E. List the protective device(s) for this component.
F. Describe the "fail" position of the component on loss of power and the reason(s) it fails in this position.
G. List the ratings of this component.
H. List the major loads supplied by this component.

		A	B	C	D	E	F	G	H
.21	Emergency generator	X	X	X	X	X	X	X	X
.22	Emergency generator check valve	X	X	X	X		X		
.23	Emergency power control relay	X		X	X		X		X
.24	Emergency transformer rectifier bus	X		X					X
.25	Essential DC bus	X		X					X
.26	Essential AC bus	X		X					X
.27	AC bus tie and emergency generator selector switch	X	X	X					X
.28	Emergency generator voltage regulator	X		X	X			X	X
.29	Emergency generator transformer rectifier	X		X				X	X
.210	Emergency generator hydraulic selector valve	X		X	X		X		
.211	Emergency generator contactor	X		X	X		X		X

5.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Explain how the component part carries out its function.
D. List or describe the sources of power to this component part.

A B C D

5205.3 COMPONENT PARTS (CONT'D)

		A
.32	Emergency generator voltage regulator	
	a. Sensing section	X
	b. Rectifying section	X
	c. Filtering section	X
.33	Emergency generator transformer rectifier	
	a. Transformer section	X
	b. Rectifier section	X
.34	Emergency generator hydraulic selector valve	
	a. Solenoid section	X
	b. Valve section	X

5205.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operatio
describing:

.41 How the emergency generator is brought on the line.
.42 How the initial generator voltage is obtained.
.43 How the power is routed to the essential AC bus.
.44 How generator voltage is regulated.
.45 How the power control relay is energized.

5205.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sen
B. Name the alarm and state the numerical value of t
which the alarm occurs.
C. State the setpoint(s).
D. State the reason for the setpoint(s) in terms of
operating above or below them.

		A
.51	Emergency generator output voltage	X
.52	Emergency generator output frequency	X
.53	Emergency generator output current	X

5205.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the fol
   1. Loss of aircraft AC and DC power
   2. Loss of aircraft hydraulic power
B. Describe the effects on the following systems due
of this system:
   1. AC Power Distribution System

5205.7 SAFETY PRECAUTIONS

206 EXTERIOR LIGHTING SYSTEM

206.1 Explain the function(s) of the EXTERIOR LIGHTING SYSTEM as stated in NAVAIR 01-85WBB-2-6.

.11 Refer to a standard print of this system during the rest of this disc

206.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List the protective device(s) for this component.
G. Discuss the protection provided by this component.
H. List the positions and function(s) of each position of this compo
I. List the interlocks associated with this component.
J. List the ratings of this component.
K. List the major loads supplied by this component.

		A	B	C	D	E	F	G	H	I
.21	Exterior lights control panel	X	X	X	X					
.22	Position lights (3)	X	X	X	X	X	X	X		
.23	Anti collision lights (2)	X	X	X	X	X	X	X		
.24	Exterior lights master switch	X	X	X	X				X	X
.25	Taxi lights (2)	X	X	X	X	X	X	X		
.26	Nose wheel floodlights (3)	X	X	X	X	X	X	X		
.27	Nose wheel floodlight switches (2)	X	X	X	X				X	X
.28	Taxi lights relay	X		X	X	X				
.29	Exterior lights relay	X		X	X	X				

206.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within th component.
C. Explain how the component part carries out its function.

		A	B	C
.31	Position lights (3)			

5206.3 COMPONENT PARTS (CONT'D)

.32 Anti collision lights (2)
  a. Anti collision light mount
  b. Anti collision light assembly
.33 Exterior lights control panel
  a. Wing light switch
  b. Tail light switch
  c. Taxi light switch
  d. Key switch

5206.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operati
by describing:

.41 How the anti collision lights are controlled.
.42 How the intensity of the position lights is controll
.43 How the exterior light master switch controls the e
power relay.

5206.5 MAJOR PARAMETERS

A. There are no major parameters in this system to

5206.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the fo
  1. Loss of electrical power
B. Describe the effects on the following systems du
of this system:
  1. Angle of Attack Indication System

5206.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this s

5207 COCKPIT LIGHTING SYSTEM

5207.1 Explain the function(s) of the COCKPIT LIGHTING SYSTEM as stated in NAVAIR 01-85WBB-2-6.

.11 Refer to a standard print of this system during the rest of this c

5207.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect position in the system and the reason(s) for its location in t position.
C. Show or describe the actual physical location of this componer
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List the protective device(s) for this component.
G. List the positions and function(s) of each position of this co
H. List the major loads supplied by this component.

		A	B	C	D	E	F	G	H
.21	Floodlights (8)	X	X	X	X	X	X		
.22	White lights (2)	X	X	X	X	X	X		
.23	Emergency spotlights	X	X	X	X				
.24	Panel lights	X	X	X	X	X	X		
.25	Pilot's console lighting panel	X	X	X	X	X	X		
.26	Co-pilot's console lighting panel	X	X	X	X	X	X		
.27	Cockpit and overhead white lighting panel	X	X	X	X			X	
.28	Pilot's panel lighting control	X	X	X				X	
.29	Co-pilot's panel lighting control	X	X	X				X	
.210	Pilot's and pedestal floodlight relay	X		X	X				X
.211	Navigational mode lighting relay	X		X	X				X

5207.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within t circuit.
C. Explain how the component part carries out its function.
D. List or describe the sources of power to this component part.

		A	B	C	D
.31	Pilot's panel lighting control				
	a. Primary light transformer	X	X	X	X

5207.3 COMPONENT PARTS (CONT'D)

	A B
.32 Co-pilot's panel lighting control	
a. Primary light transformer	X X
b. Secondary light transformer	X X

5207.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation
describing:

.41 How the intensity of the panel lights is varied.
.42 How the intensity of the cockpit floodlights is controll
.43 How the navigational mode light relay is energized.

5207.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be

5207.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the follo
   1. Loss of electrical power
B. There are no effects on other systems due to the ope
   system to be discussed.

5207.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this syste

08.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does f the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.

		A	B	C	D
.21	Cabin dome lights (5)	X	X	X	X
.22	Cabin dome light switch (1)	X	X	X	
.23	Emergency exit lights (4)	X		X	X
.24	Cabin reading lights (15)	X	X	X	X
.25	Cabin reading lights switch (1)	X	X	X	
.26	Cabin reading lights push button on off switch (15)	X	X	X	

08.3 COMPONENT PARTS

A. There are no component parts in this system to be discussed.

08.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this system b describing:

.41 How the overhead dome lights are automatically energized

08.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be discussed.

08.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
    1. Cabin pressurization failure above 10,500 feet
B. There are no effect(s) on other systems due to the operation of this system to be discussed.

08.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

.11 Refer to a standard print of this system during the rest of this discus

09.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does f the system.
B. Show or describe the actual physical location of this component.
C. List the protective devices for the component.
D. Describe the "fail" position of the component on loss of power and reason(s) it fails in this position.
E. List the ratings of this component.
F. List the major loads supplied by this component.
G. List or describe the sources of control signals and/or power signal.

	A	B	C	D	E	F	G
.21 Air data computer	X	X	X	X	X	X	X
.22 Monitor transducer	X	X			X	X	X

09.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Describe the physical location of this component part within the component.
D. Explain how the component part carries out its function.
E. List or describe the sources of power to this component part.

	A	B	C	D	E
.31 Air data computer					
a. Altitude module	X	X	X	X	X
b. Impact pressure module	X	X	X	X	X
c. Servo amplifier modules (2)	X	X	X	X	X
d. Power supply module	X	X	X	X	X
e. Chassis assembly	X	X	X		

5209.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this sy describing:

.41 How pitot and static pressure inputs to the air data computer cau electrical outputs.
.42 How altitude monitoring is computed in the air data computer.
.43 How mach number is derived in the air data computer

5209.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing point.
B. Show or describe the physical location at which the parameter displayed for monitoring.
C. Name the alarm and state the numerical value of the setpoint the alarm occurs.
D. State the setpoint(s).
E. State the reason(s) for the setpoint(s) in terms of the effec operating above or below them.

		A	B	C	D	E
.51	Aircraft velocity	X	X	X	X	X
.52	Outside air pressure	X	X	X	X	X

5209.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
    1. Pitot and static pressure instrument operation
B. Describe the effect(s) on the following system(s) due to the of this system:
    1. Automatic Flight Control System

5209.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

AUTOMATIC FLIGHT CONTROL SYSTEM

.1 Explain the function(s) of the AUTOMATIC FLIGHT CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-7

.11 Refer to a standard print of this system during the rest of this discussi

.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List or describe the mode(s) of operation.
G. List the protective devices for the component.
H. Discuss the protection provided by this component.
I. List the interlocks associated with the component.
J. Describe the "fail" position of the component on loss of power and th reason(s) it fails in this position.
K. List the positions and functions of each of-the designated switches.

		A	B	C	D	E	F	G	H	I	J	K
.21	Control wheels (2)	X	X	X	X				X	X		X
.22	Automatic pilot engaging controller	X	X	X	X		X	X	X	X	X	X
.23	Gyro package	X	X	X	X							
.24	Elevator integrated actuator	X	X	X	X	X		X	X			
.25	Left aileron actuator	X	X	X	X	X		X	X			
.26	Outboard rudder actuator	X	X	X	X	X		X	X			
.27	Rudder (series) actuator	X	X	X	X	X		X	X			X
.28	Pitch position transducer	X	X	X	X	X		X	X			
.29	Aileron position transducer	X	X	X	X	X		X	X			
.210	Inboard rudder actuator	X	X	X	X	X						
.211	Outboard rudder actuator (left hand)	X	X	X	X	X		X	X			
.212	Outboard rudder actuator (right hand)	X	X	X	X	X		X	X			
.213	AFCS junction box	X		X								
.214	Air navigation computer	X		X	X	X				X		

5210.3 COMPONENT PARTS

Discuss the designated items for each component part li

A. Explain the function(s) of the component part in te does for the component.

B. Describe the functional location of this component component.

C. Describe the physical location of this component pa component.

D. Explain how the component part carries out its func

E. List or describe the sources of power to this compo

		A	B
.31	Control wheels (2)		
	a. Pitch trim switch	X	X
	b. Roll trim switch	X	X
	c. Roll and detent switch	X	X
	d. Automatic Flight Control System emergency disengage switch	X	X
	e. Pitch and detent switch	X	X
	f. Master control switch	X	X
	g. ICS key switch	X	X
	h. Emergency trim disengage switch	X	X
.32	Automatic pilot engaging controller		
	a. Power switch	X	X
	b. Stability augmentation switch	X	X
	c. AFCS switch	X	X
	d. Altitude hold switch	X	X
	e. Automatic Landing switch	X	X
	f. Tacan switch	X	X
.33	Gyro package		
	a. Roll rate gyro	X	X
	b. Pitch rate gyro	X	X
	c. Yaw rate gyro	X	X
.34	Air navigation computer		
	a. Command coupler	X	X
	b. Roll computer	X	X
	c. Roll servo amplifier	X	X
	d. Pitch computer	X	X
	e. Pitch servo amplifier	X	X
	f. Yaw servo amplifier	X	X
	g. "Q" feel amplifier	X	X
	h. Equipment rack	X	X

210.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this system b describing:

.41 Stabilization augmentation
.42 Attitude hold (AFCS)
.43 Altitude hold
.44 Automatic Landing System (ALS)
.45 Tactical air navigation (Tacan)

210.5 MAJOR PARAMETERS

A. State the setpoint(s).
B. State the reason(s) for the setpoint(s) in terms of the effect of operating above or below them.

		A	B
.51	Air navigation computer	X	X
.52	Control wheels (2)	X	

210.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the air data computer
   2. Operation of the tactical air navigation
B. Describe the effect(s) on the following system(s) due to the operat of this system:
   1. Rudder Control Mechanical System
   2. Aileron Control Mechanical System
   3. Elevator System
   4. Pitch "Q" Feel System

210.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

MA-1 COMPASS SYSTEM

1 Explain the function(s) of the MA-1 COMPASS SYSTEM as stated in NAVAIR 01-85WBB-2-7.3.

11 Refer to a standard print of this system during the rest of this discussi

2 SYSTEM COMPONENTS - GENERAL
Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does fo the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the mode(s) of operation.
F. List the protective devices for the component.

	A	B	C	D	E	F
21 Compass system controller	X	X	X		X	
22 Compensating adapter	X	X	X			X
23 Compass gyroscope and amplifier assembly	X	X	X	X		X
24 Remote compass transmitter	X	X	X	X		
25 Relay assembly	X	X	X			
.26 Bearing Distance Heading indicator	X	X	X	X		
.27 Course indicator	X	X	X	X		

.3 COMPONENT PARTS
Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Describe the physical location of this component part within the component.
D. Describe the physical location of this component part within the circ
E. Explain how the component part carries out its function.
F. List or describe the sources of power to this component part.

	A	B	C	D	E	F
.31 Compass System controller						
a. Synchronizer indicator	X	X	X		X	X
b. Heading set switch	X	X	X		X	X
c. Free/slaved switch	X	X	X		X	X

5211.3 COMPONENT PARTS (CONT'D)

		A	B	C
.32	Compensating adapter			
	a. Deviation adjustment switch	X	X	X
.33	Remote compass transmitter			
	a. North/South adjustment	X	X	X
	b. East/West adjustment	X	X	X
.34	Compass gyroscope and amplifier assembly			
	a. MA-1 compass gyroscope	X	X	
	b. Transformer board assembly	X	X	
	c. Leveling amplifier assembly	X	X	
	d. Slaving amplifier assembly	X	X	

5211.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation o describing:

.41 The utilization of magnetic heading
.42 The free mode of operation
.43 The slaved mode of operation

5211.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be d

5211.6 SYSTEM INTERRELATIONS

A. There are no effect(s) on this system to be discusse
B. Describe the effect(s) on the following system(s) du of this system:
    1. Automatic Flight Control System

5211.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this syste

CAUTION AND ADVISORY LIGHTS SYSTEM

.1 Explain the function(s) of the CAUTION AND ADVISORY LIGHTS SYSTEM as stated in NAVAIR 01-85WBB-2-5.

.11 Refer to a standard print of this system during the rest of this discuss

.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does fo the system.
B. Describe the functional location of the component with respect to it position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List the interlocks associated with the component.
F. Describe the physical location of the sensing points for the compone

		A	B	C	D	E	F
.21	Caution light panel	X	X	X	X	X	X
.22	Advisory light panel	X	X	X	X	X	X
.23	Master caution light test switch	X	X	X	X		
.24	Master caution light reset switch	X	X	X			
.25	Master caution lights (2)	X	X	X	X	X	X
.26	Panel lights control	X	X	X	X		

.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain how the component part carries out its function.
B. List or describe the sources of power to this component part.

		A	B
.31	Caution light panel		
	a. Caution indication lights	X	X
.32	Advisory light panel		
	a. Advisory indication lights	X	X

5212.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation
describing:

.41 How the caution light is illuminated.
.42 How the pitch feel light is illuminated.
.43 How the master caution light is reset.
.44 How the maximum rudder light is illuminated
.45 How the generator light is illuminated
.46 How the Inertial Navigation System light is illuminated
.47 How the manual "Q" light is illuminated.
.48 How the intensity of the advisory and caution lights pa
is varied

5212.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be

5212.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the follo
   1. Loss of DC power.
B. There are no effects on other systems due to the op
this system to be discussed.

5212.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this syst

PITOT AND STATIC PRESSURE INSTRUMENT SYSTEM

1 Explain the function(s) of the PITOT AND STATIC PRESSURE INSTRUMENT SYSTEM as stated in NAVAIR 01-85WBB-2-5 and NAVPERS 10348 AE 3 & 2.

11 Draw a one line block diagram of this system from memory using appropria symbols and showing all components listed in 5213.2.

12 Refer to a standard print of this system during the rest of this discuss

2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does fo the system.
B. Describe the functional location of the component with respect to it position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List the protective devices for the component.
F. Discuss the protection provided by this component.
G. Describe the physical location of the sensing points for the compone

		A	B	C	D	E	F	G
21	Pitot tubes (2)	X	X	X				
22	Static ports (6)	X	X	X				
23	Rate of climb indicators (2)	X	X	X				X
24	Altimeters (3)	X	X	X				X
25	Air speed indicators (3)	X	X	X				X
26	Pitot heat system switch	X	X	X	X	X		
27	Pitot and static line drains	X	X	X			X	

3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within the component.
C. Explain how the component part carries out its function.
D. Describe the major materials used and explain why.

5213 COMPONENT PARTS (CONT'D)

		A	B	C
.31	Rate of climb indicators (2)			
	a. Diaphragm	X	X	X
	b. Over pressure diaphragm	X	X	X
	c. Relief valve	X	X	X
	d. Mechanical linkage	X	X	X
	e. Pointer	X	X	X
.32	Altimeters (3)			
	a. Aneroid water	X	X	X
	b. Pointer	X	X	X
	c. Temperature compensator	X	X	X
	d. Gear System	X	X	X
.33	Air speed indicators (3)			
	a. Diaphragm	X	X	X
	b. Pointer	X	X	X
	c. Mechanical linkage	X	X	X

5213.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation o describing:

.41 How a change in static pressure effects the rate of climb
.42 How pitot heat effects air speed indication.
.43 How pitot pressure differs form static pressure

5213.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be d

5213.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the follow
  1. Operation of the AC Power Generation System
B. Describe the effect(s) on the following system(s) du of this system:
  1. Air Data Computer System

5213.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this syste

MAXIMUM RUDDER AND PITCH FEEL INDICATING SYSTEM

.1 Explain the function(s) of the MAXIMUM RUDDER AND PITCH FEEL INDICATING SYSTEM as stated in NAVAIR 01-85WBB-2-5 and NAVPERS 10348 AE 3 & 2.

.11 Refer to a standard print of this system during the rest of this discus

.2 SYSTEM COMPONENTS - GENERAL
Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List the protective device(s) for this component.

		A	B	C	D	E	F
.21	Monitor transducer	X		X	X	X	X
.22	Pitch "Q" feel actuator	X	X	X	X	X	X
.23	2 degree stop actuator	X	X	X	X	X	X
.24	Ratio change actuator	X	X	X	X	X	X
.25	Trim control panel	X	X	X	X		X
.26	Pitch "Q" feel and maximum rudder indicator	X	X	X	X	X	X
.27	Air data computer	X		X	X	X	X

.3 COMPONENT PARTS
Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within the component.
C. Explain how the component part carries out its function.
D. List the positions and function(s) of each of the designated switch
E. List or describe the sources of power to this component part.

		A	B	C	D	E
.31	Trim control panel					
	a. Standby trim switch	X	X		X	X
	b. Pitch feel auto/manual switch	X	X		X	X
	c. Increase/decrease switch	X	X		X	X
	d. Maximum rudder switch	X	X		X	X

5214.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this describing:

.41 How the "Q" initial signal is developed in the automatic mode.
.42 How the "Q" system increases or decreases the feel on the cont surfaces.
.43 How the "Q" system changes rudder deflection from 20 degrees t 6 degrees.
.44 How the "Q" signals are manually initiated.
.45 How the 2 degree maximum rudder deflection is accomplished.

5214.5 MAJOR PARAMETERS

A. Show or describe the physical location at which the parame displayed for monitoring.
B. Name the alarm and state the numerical value of the setpoi which the alarm occurs.
C. State the setpoint(s).
D. State the reason for the setpoint(s) in terms of the effec operating above or below them.

		A	B	C	D
.51	Pitch feel actuator degrees of movement	X	X	X	X
.52	2 degree stop actuator	X	X	X	X
.53	Ratio change actuator degrees of movement	X	X	X	X

5214.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the Air Data Computer System
   2. Operation of the Pitot and Static Instrument System
B. There are no effects on other systems due to the operation system to be discussed.

5214.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

ANGLE OF ATTACK INDICATION SYSTEM

Explain the function(s) of the ANGLE OF ATTACK INDICATION SYSTEM as stated in NAVAIR 01-85WBB-2-5 and NAVPERS 10348 AE 3 & 2.

Refer to a standard print of this system during the rest of this discussion

SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List the protective device(s) for this component.
G. List the positions and function(s) of each of the designated switches.

	A	B	C	D	E	F	G
Angle of attack indicator	X	X	X	X	X	X	
Airstream direction detector	X	X	X	X	X	X	
Approach lights (3)	X	X	X	X	X	X	
Approach indexer	X	X	X	X	X	X	
Stall warning devices (2)	X	X	X	X	X	X	
Arresting hook warning flasher	X	X	X	X	X	X	
Approach light test switch	X	X	X	X			X
Pitot heat switch	X	X	X	X			X
Approach indexer intensity auto transformers	X	X	X	X	X	X	X
0 Hook bypass switch	X	X	X	X			X
1 #1 air-ground safety switch	X	X	X	X		X	X

COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Describe the physical location of this component part within the component.
D. Explain how the component part carries out its function.
E. List or describe the sources of power to this component part.

A B C D E

5215.3 COMPONENT PARTS (CONT'D)

	A	B	C	D	E
.32 Airstream direction detector					
a. Probe	X	X	X	X	
b. Air passages	X	X	X	X	
c. Paddle	X	X	X	X	
d. Paddle chamber	X	X	X	X	
e. Orifice	X	X	X	X	
f. Potentiometer	X	X	X	X	X
g. Mechanical linkage	X	X	X	X	

5215.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this sys by describing:

.41 How a nose up attitude will affect the angle of attack system dur a landing configuration.
.42 How the output of the airstream direction detector is originated.
.43 How the setting of the angle of attack indicator affects the appr indexer and approach lights.
.44 How the signal is utilized that causes the low configuration on th angle of attack indexer.
.45 How the approach light test switch is used to illuminate the inde and approach lights.
.46 How the stall warning devices are activated.

5215.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing point.
B. Show or describe the physical location at which the parameter displayed for monitoring.
C. Name the alarm and state the numerical value of the setpoint a which the alarm occurs.
D. State the setpoint(s).

	A	B	C	D
.51 Angle of attack indicator	X	X	X	X
.52 Approach lights	X	X	X	X
.53 Approach lights indexer	X	X	X	X

5215.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Loss of AC and DC power
B. There are no effects on other systems due to the operation of system to be discussed.

5 WHEELS AND FLAPS POSITION INDICATING SYSTEM

5.1 Explain the function(s) of the WHEELS AND FLAPS POSITION INDICATING SYSTEM as stated in NAVAIR 01-85WBB-2-5.

.11 Refer to a standard print of this system during the rest of this discus

5.2 SYSTEM COMPONENTS - GENERAL
Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List the protective device(s) for this component.
G. List the positions and function(s) of each of the designated switch

	A	B	C	D	E	F	G
.21 Wheel position indicator	X	X	X	X	X	X	
.22 Flap position indicator	X	X	X	X	X	X	
.23 Flap position transmitter	X	X	X	X	X	X	
.24 Flap position gear box limit switch	X	X	X	X	X	X	X
.25 Flap positioning switch	X	X	X	X	X	X	X
.26 Flap electrical actuator	X	X	X	X	X	X	
.27 Flap asymmetry switches (2)	X	X	X	X	X	X	X
.28 Landing gear handle	X	X	X	X	X	X	
.29 Landing gear up lock switches (3)	X	X	X	X	X	X	X
.210 Landing gear down lock switches (3)	X	X	X	X	X	X	X

5.3 COMPONENT PARTS
Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Explain how the component part carries out its function.
D. List or describe the sources of power to this component part.

	A	B	C	D
.31 Wheel position indicator				

5216.3 COMPONENT PARTS (CONT'D)

	A	B	C	D
.33 Flap position transmitter				
a. Potentiometer	X	X	X	X
b. Mechanical linkage	X	X	X	
.34 Flap asymmetry switches (2)				
a. Control actuating mechanism	X	X	X	
b. Cams (3)	X	X	X	
c. Switches (3)	X	X	X	X

5216.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this describing:

.41 How the electrical signal is used to change the position of th or flaps.

.42 How the flap actuator changes position with each new movement positioning switch.

.43 How an unequal movement of the flaps stops flap movement.

5216.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be discuss

5216.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
    1. Loss of AC and DC power
    2. Loss of aircraft hydraulic power

B. Describe the effects on the following systems due to the of this system:
    1. Wing Fold System

5216.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

7 TRIM POSITION INSTRUMENT SYSTEM

7.1 Explain the function(s) of the TRIM POSITION INSTRUMENT SYSTEM as stated in NAVAIR 01-85WBB-2-5.

.11 Refer to a standard print of this system during the rest of this discus

7.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. Describe the modes of control.
F. List or describe the mode(s) of operation.
G. List the protective device(s) for this component.

		A	B	C	D	E	F	G
.21	Trim position indicator	X	X	X	X		X	X
.22	Rudder trim actuator	X	X	X	X	X	X	X
.23	Aileron trim actuator	X	X	X	X	X		X
.24	Elevator trim actuator	X	X	X	X	X		X
.25	Trim switches (4)	X	X	X	X			
.26	Aileron trim transmitter	X	X	X	X			
.27	Rudder trim transmitter	X	X	X	X			
.28	Elevator trim transmitter	X	X	X	X			

7.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within the component.
C. Explain how the component part carries out its function.

		A	B	C
.31	Trim position indicator			
	a. Elevator trim	X	X	X
	b. Rudder trim	X	X	X
	c. Aileron trim	X	X	X

5217.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of
by describing:

.41 How a signal is used to control trim actuator movement.
.42 How the trim indicator indicates changes in position of th
.43 How the manual trim mode of operation becomes deenergized
Automatic Flight Control System.

5217.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be dis

5217.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the followir
   1. Operation of the Automatic Flight Control System
   2. Operation of the rudder
   3. Operation of the aileron and elevator

B. There are no effects on other systems due to the opera
system to be discussed.

5217.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

UTILITY INSTRUMENTS SYSTEM

.1 Explain the function(s) of the UTILITY INSTRUMENTS SYSTEM as stated in NAVAIR 01-85WBB-2-5.

.11 Refer to a standard print of this system during the rest of this discuss

.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to it position in the system and the reason(s) for its location in this position.
C. Describe the sources of power.
D. List or describe the source(s) of control signal(s).
E. List the protective device(s) for this component.
F. Describe the physical location of the sensing points for the component.
G. List the ratings of this component.

		A	B	C	D	E	F	G
.21	Accelerometer	X	X					X
.22	Outside air temperature indicator	X	X	X	X	X	X	X
.23	Liquid oxygen (LOX) indicator	X	X	X	X	X	X	X
.24	Clocks (2)	X	X					X
.25	Cabin pressure altimeter	X	X					X
.26	Deice pressure gauge	X	X					X
.27	Deice suction gauge	X	X					X
.28	Liquid oxygen test switch	X	X	X				
.29	Outside air temperature bulb	X						
.210	Outside air temperature probe	X	X	X				
.211	Liquid oxygen probes (2)	X	X					
.212	Oxygen low pressure switch	X		X				X

.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Explain how the component part carries out its function.
D. List or describe the sources of power to this component part.

		A	B	C	D
.31	Outside air temperature indicator				

	A	B
.32 Liquid oxygen (LOX) indicator		
a. Capacitance bridge circuit	X	X
b. Amplifier	X	X
c. Servomotor	X	X
d. Gear train	X	X
e. Off flag	X	X
f. Low oxygen level switch	X	X
g. Calibrated dial	X	X
h. Pointer	X	X
.33 Cabin pressure altimeter		
a. Aneroid element	X	X
b. Mechanical linkage	X	X
c. Pointer	X	X
.34 Deice pressure gauge		
a. Bourdon tube	X	X
b. Mechanical linkage	X	X
c. Pointer	X	X
.35 Deice suction gauge		
a. Bourdon tube	X	X
b. Mechanical linkage	X	X
c. Pointer	X	X

5218.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation describing:

.41 How high and low conditions affect the deice pressure g
.42 How changes in air pressure (high or low) affects the c
.43 How a change of cabin pressure affects the cabin pressu
.44 How loss of liquid oxygen pressure affects the liquid c

5218.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be

5218.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the follo
    1. Operation of the AC Power Generation System
    2. Operation of the Cabin Pressurization System
    3. Operation of the Liquid Oxygen System
B. Describe the effects on the following systems due of this system:
    1. Caution and Advisory Lights System

5218.7 SAFETY PRECAUTIONS

19 ENGINE INSTRUMENT SYSTEM

19.1 Explain the function(s) of the ENGINE INSTRUMENT SYSTEM as stated in NAVAIR 01-85WBB-2-5 and Aviation Electrician"s Mate 3 & 2 NAVPERS 1034

.11 Refer to a standard print of this system during the rest of this discu

19.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in term of what it does for the system.
B. Describe the functional location of the component with respect to position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List the protective device(s) for this component.
G. List the positions and function(s) of each position of this compon
H. Describe the physical location of the sensing points for the compo

		A	B	C	D	E	F	G	H
.21	Torque indicators (2)	X		X		X	X		X
.22	Torque sensing units (2)	X	X	X	X				
.23	Tachometer generators (2)	X		X		X			X
.24	Tachometer indicator	X		X				X	
.25	Reduction gearbox oil pressure indicators (2)	X		X		X	X		X
.26	Reduction gearbox oil pressure transmitters (2)	X		X	X				
.27	Oil temperature indicators (2)	X		X		X	X		X
.28	Oil temperature probes (2)	X	X						
.29	Combined hydraulic dual indicator	X		X		X	X		X
.210	Flight hydraulic dual indicator	X		X		X	X		X
.211	Combined hydraulic transmitters (2)	X		X	X				
.212	Flight hydraulic transmitters (2)	X		X	X				
.213	Engine oil pressure indicators (2)	X		X		X	X		X
.214	Engine oil pressure transmitters (2)	X		X	X				
.215	Fuel quantity test switch	X		X	X				
.216	Torque indicator switches (2)	X		X				X	
.217	Fuel quantity indicators (2)	X		X		X	X		X
.218	Fuel flow indicators (2)	X		X		X	X		
.219	Fuel quantity probes (8)	X	X		X				
.220	Fuel flow transmitters (2)	X	X		X				
.221	Oil level indicators (2)	X		X		X	X		X
.222	Oil level sensors (2)	X	X		X				
.223	Turbine inlet temperature indicators (2)	X		X		X	X		X

5219.3 COMPONENT PARTS (CONT'D)

	A	B	C	D	E
.310 Combined hydraulic transmitters (2)					
a. Diaphragm	X		X	X	
b. Mechanical linkage	X	X	X	X	
c. Rotor	X		X	X	X
d. Stator	X		X	X	X
.311 Flight hydraulic transmitters (2)					
a. Diaphragm	X		X	X	
b. Mechanical linkage	X	X	X	X	
c. Rotor	X		X	X	X
d. Stator	X		X	X	X
.312 Engine oil pressure indicators (2)					
a. Rotor	X		X	X	X
b. Stator	X		X	X	X
c. Mechanical linkage	X		X	X	
d. Pointer	X	X	X	X	
.313 Engine oil pressure transmitters (2)					
a. Diaphragm	X		X	X	
b. Mechanical linkage	X	X	X	X	
c. Rotor	X		X	X	X
d. Stator	X		X	X	X
.314 Fuel quantity indicators (2)					
a. Amplifier	X		X	X	X
b. Two phase indicator motor	X		X	X	X
c. Bridge circuit	X		X	X	X
.315 Fuel quantity probes (8)					
a. Probe body	X		X	X	
b. Plates (2)	X	X	X	X	
.316 Fuel flow transmitters (2)					
a. Rotor	X		X	X	X
b. Stator	X		X	X	X
c. Vanes (2)	X	X	X	X	
.317 Fuel flow indicators (2)					
a. Rotor	X		X	X	X
b. Stator	X		X	X	X
c. Pointer	X	X	X	X	
.318 Oil level indicators (2)	X	X	X	X	
a. Rotary drum dial	X	X	X	X	
b. Two section coil	X		X	X	X
.319 Oil level sensors (2)					
a. Low/normal switch	X		X	X	
b. Float mechanism	X	X	X	X	

5219.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of th
by describing:

219.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within th component.
C. Describe the physical location of this component part within the component.
D. Explain how the component part carries out its function.
E. List or describe the sources of power to this component part.

	A	B	C	D	E
.31 Torque indicators (2)					
a. Phase detector	X		X	X	X
b. Amplifier	X		X	X	X
c. Servo motor	X	X	X	X	X
.32 Torque sensing units (2)					
a. Concentric shafts (2)	X	X	X	X	
b. Magnetic pickup	X	X	X	X	X
.33 Tachometer generators (2)					
a. Permanent magnetic rotor	X		X	X	
b. Stator	X		X	X	
c. Shear shaft	X	X	X	X	
.34 Tachometer indicator					
a. Synchro motor	X	X	X	X	X
b. Magnetic drag cup	X		X	X	
c. Mechanical linkage	X		X	X	
d. Pointer	X	X	X	X	
.35 Reduction gearbox oil pressure indicators (2)					
a. Rotor	X		X	X	X
b. Stator	X		X	X	X
c. Mechanical linkage	X		X	X	
d. Pointer	X	X	X	X	
.36 Reduction gearbox oil pressure transmitters (2)					
a. Diaphragm	X	X	X	X	
b. Mechanical linkage	X	X	X	X	
c. Rotor	X		X	X	X
d. Stator	X		X	X	X
.37 Oil temperature indicators (2)					
a. Wheatstone bridge	X		X	X	X
b. Pointer	X	X	X	X	
c. Mechanical linkage	X		X	X	
.38 Combined hydraulic dual indicator					
a. Rotor	X		X	X	X
b. Stator	X		X	X	X
c. Mechanical linkage	X		X	X	

.45 How the oil temperature probe is affected by temperature
.46 How the oil level sensor transmits a signal to the level

5219.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing
B. Show or describe the physical location at which the p displayed for monitoring.
C. Name the alarm and state the numerical value of the s which the alarm occurs.
D. State the setpoint(s).
E. State the reason for the setpoint(s) in terms of the operating above or below them.

	A	B	C
.51 Fuel quantity	X	X	X
.52 Hydraulic pressure	X	X	X
.53 Oil level	X	X	X

5219.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the followi
   1. Operation of the Aircraft AC Power Generation Sys
   2. Operation of the Flight Hydraulic Pressure Syster
   3. Operation of the Combined Hydraulic Pressure Syst
   4. Operation of the Engine Oil System
   5. Operation of the Reduction Gear Oil System
   6. Operation of the Engine Fuel System
   7. Operation of the Turbine Inlet Temperature Indica
B. There are no effects on other systems due to the oper system to be discussed.

5219.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this systen

TURBINE INLET TEMPERATURE (TIT) INDICATION SYSTEM

.1 Explain the function(s) of the TURBINE INLET TEMPERATURE (TIT) INDICATION SYSTEM as stated in NAVIAR 01-85WBB-2-5 and Aviation Electrician's Mate 3 & 2 NAVPERS 10348.

.11 Refer to a standard print of this system during the rest of this discus

.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

- A. Explain the function(s) of the component in terms of what it does for the system.
- B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
- C. Show or describe the actual physical location of this component.
- D. Describe the sources of power.
- E. List or describe the source(s) of control signal(s).
- F. List the protective device(s) for this component.

	A	B	C	D	E	F
.21 Turbine inlet temperature indicators (2)	X		X	X	X	X
.22 Turbine inlet temperature thermocouples	X	X	X	X	X	X
.23 Temperature datum control units (2)	X		X	X	X	X
.24 Temperature datum switches	X	X		X	X	X

.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

- A. Explain the function(s) of the component part in terms of what it does for the component.
- B. Describe the functional location of this component part within the component.
- C. Explain how the component part carries out its function.
- D. List or describe the sources of power to this component part.

	A	B	C	D
.31 Turbine inlet temperature indicators (2)				
a. Pointer	X	X	X	
b. Servo motor	X		X	X
c. Modulator	X		X	X
d. Amplifier	X		X	X
.32 Temperature datum control units (2)				
a. Amplifier section	X		X	X
b. Thermocouple input section	X		X	X
.33 Temperature datum switches				

5220.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this sy
by describing:

.41 How a change in turbine inlet temperature affects the system.
.42 How the fuel control is maintained in automatic control.
.43 How the thermocouple signal is amplified.

5220.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing point.
B. Show or describe the physical location at which the parameter
displayed for monitoring.
C. Name the alarm and state the numerical value of the setpoint
which the alarm occurs.
D. State the setpoint(s).
E. State the reason for the setpoint(s) in terms of the effect o
operating above or below them.

	A	B	C	D	E
.51 Turbine inlet temperature	X	X	X	X	X

5220.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the AC Power Generation System
   2. Operation of the T-56 Engine
B. There are no effects on other systems due to the operation of
system to be discussed.

5220.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

ENGINE FIRE DETECTION SYSTEM

1 Explain the function(s) of the ENGINE FIRE DETECTION SYSTEM as stated in NAVAIR 01-85WBB-2-3.

11 Draw a one line block diagram of this system from memory using appropriat symbols and showing all components listed in 5221.2.

12 Refer to a standard print of this system during the rest of this discussi

2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List the positions and function(s) of each position of this component

		A	B	C	D	E
21	Fire warning test switch	X		X	X	X
22	Fire warning control units (2)	X		X	X	
23	Fire warning elements (16)	X	X		X	
24	Fire warning lights (2)	X		X	X	

3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within the component.
C. Explain how the component part carries out its function.
D. List or describe the sources of power to this component part.

	A	B	C	D
31 Fire warning control units (2)				
a. Amplifier	X	X	X	X
b. Fire warning test relay	X	X	X	X

4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this system by describing:

5221.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sen
B. Show or describe the physical location at which t displayed for monitoring.
C. Name the alarm and state the numerical value of t which the alarm occurs.
D. State the setpoint(s).
E. State the reason for the setpoint(s) in terms of operating above or below them.

	A
.51 Exhaust gas temperature	X

5221.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the fol
   1. Operation of the AC Power Generation System
   2. Operation of the T-56 Engine
B. There are no effects on other systems due to the this system to be discussed.

5221.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this sy

222 LOW FUEL LEVEL WARNING SYSTEM

222.1 Explain the function(s) of the LOW FUEL LEVEL WARNING SYSTEM as stated in NAVAIR 01-85WBB-2-5.

.11 Refer to a standard print of this system during the rest of this disc

222.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List the protective device(s) for this component.
F. List the positions and function(s) of each position of this compo
G. List the ratings of this component.

		A	B	C	D	E	F	G
.21	Low fuel warning sensors (2)	X	X		X			X
.22	Low fuel warning dual control unit	X		X	X	X		X
.23	Fuel/oxygen quantity test switch	X	X			X	X	
.24	Low fuel warning test relay	X		X	X			
.25	Low fuel warning caution lights (2)	X	X					

222.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within the component.
C. Explain how the component part carries out its function.
D. List or describe the sources of power to this component part.

		A	B	C	D
.31	Low fuel warning sensors (2)				
	a. Compensating section	X	X	X	
	b. Reference section	X	X	X	
	c. Sensing section	X	X	X	
.32	Low fuel warning dual control unit				
	a. Bridge circuits (2)	X	X	X	X
	b. Relays (2)	X	X	X	X

5222.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this sy describing:

.41 How a low fuel condition caution light becomes energized.
.42 How the control unit amplifies a signal from the fuel low level s

5222.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing point.
B. Show or describe the physical location at which the paramete displayed for monitoring.
C. Name the alarm and state the numerical value of the setpoint which the alarm occurs.
D. State the setpoint(s).
E. State the reason for the setpoint(s) in terms of the effect operating above or below them.

	A	B	C	D	E
.51 Aircraft Fuel System	X	X	X	X	X

5222.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the AC Power Generation System
   2. Operation of the C-2 Aircraft Fuel System
B. There are no effects on other systems due to the operation o system to be discussed.

5222.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

FLIGHT INSTRUMENT SYSTEM

.1 Explain the function(s) of the FLIGHT INSTRUMENT SYSTEM as stated in NAVAIR 01-85WBB-2-5.

.11 Draw a one line block diagram of this system from memory showing all components listed in 5223.2.

.12 Refer to a standard print of this system during the rest of this discuss

.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

- A. Explain the function(s) of the component in terms of what it does fo the system.
- B. Describe the functional location of the component with respect to it position in the system and the reason(s) for its location in this position.
- C. Show or describe the actual physical location of this component.
- D. Describe the sources of power.
- E. List or describe the source(s) of control signal(s).
- F. Discuss the protection provided by this component.

		A	B	C	D	E	F
.21	Turn and slip indicators (2)	X		X	X		
.22	Stand by compass	X		X			
.23	Attitude indicator	X	X	X		X	
.24	Roll and pitch displacement gyroscope (2)	X	X	X	X		
.25	Gyroscope rate switch	X	X	X	X		X
.26	Fast erect switches (2)	X	X	X			
.27	Normal/correction switch	X	X	X			

.3 COMPONENT PARTS

A. There are no component parts in this system to be discussed.

.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this system by describing:

A. How each position of the designated switches effects the system.

		A
.41	Fast erect switch	X
.42	Normal/correction switch	X

5223.6 SYSTEM INTERRELATIONS

A. There are no effects on this system due to the op
systems to be discussed.

B. Describe the effects on the following systems du
of this system.
   1. Automatic Flight Control System

5223.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this s

5224 EMERGENCY FLUID SHUTOFF SYSTEM

5224.1 Explain the function(s) of the EMERGENCY FLUID SHUTOFF SYSTEM as stated in NAVAIR 01-85WBB-2-4.

.11 Refer to a standard print of this system during the rest of this dis

5224.2 SYSTEM COMPONENTS - GENERAL
Discuss the designated items for each component listed below:

- A. Explain the function(s) of the component in terms of what it doe the system.
- B. Show or describe the actual physical location of this component.
- C. Describe the sources of power.
- D. List or describe the source(s) of control signal(s).

		A	B	C	D
.21	Fire emergency switches (2)	X	X	X	
.22	Fuel shutoff valves (2)	X	X	X	X
.23	Combined hydraulic shutoff valves (2)	X	X	X	X
.24	Flight hydraulic shutoff valves (2)	X	X	X	

5224.3 COMPONENT PARTS
Discuss the designated items for each component part listed below:

- A. Describe the physical location of this component part within the component.
- B. Explain how the component part carries out its function.

		A	B
.31	Fire emergency switches (2)		
	a. Fuel cutoff contacts	X	X
	b. Combined hydraulic cutoff contacts	X	X
	c. Flight hydraulic cutoff contacts	X	

224.4 PRINCIPLES OF OPERATION
Demonstrate an understanding of the internal operation of this syste describing:

.41 How the fuel shutoff valve is controlled.
.42 How the flight hydraulic valve is controlled.

5224.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be disc

5224.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following
   1. Operation of the AC Power Generation System

B. Describe the effect(s) on the following system(s) due t of this system:
   1. C-2 Aircraft Fuel System
   2. Flight Hydraulic Power System
   3. Combined Hydraulic Power System

5224.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

ENGINE IGNITION AND FUEL CONTROL SYSTEM

1 Explain the function(s) of the ENGINE IGNITION AND FUEL CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-4.

11 Refer to a standard print of this system during the rest of this discussio

2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. List or describe the source(s) of control signal(s).
E. List the positions and function(s) of each position of this component.

		A	B	C	D	E
21	Engine control panel	X		X		
22	Condition lever limit switch	X	X			X
23	Ignition power relay	X		X	X	
24	Ignition exciter	X	X		X	
25	Ignition relay	X		X	X	
26	Fuel manifold pressure switch	X		X		X
27	Fuel shutoff valve actuator	X		X	X	X
28	Engine starter switches (2)	X		X		X
29	Drip valve solenoid	X		X	X	
210	Ground start relay	X		X	X	
211	Turbine inlet thermocouples	X	X			

3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within the component.
C. Explain how the component part carries out its function.
D. List or describe the sources of power to this component part.

A B C D

5225 COMPONENT PARTS (CONT'D)

		A	B	C	D
.31	Engine control panel (cont'd)				
	b. Engine fuel enrich switch	X	X	X	X
	c. Temperature datum switches	X	X	X	X
.32	Engine starter switches (2)				
	a. Centrifugal contacts	X	X	X	

5225.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this describing:

.41 How the left engine ground start relay becomes energized.
.42 The path of DC power from the engine feeder bus to the ignition exciter.
.43 How the engine drip valve solenoid becomes energized.
.44 The path of DC power from the engine feeder bus to the fuel shutoff valve actuator

5225.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be discuss

5225.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the AC Power Generation System
   2. Operation of the C-2 Aircraft Fuel System
B. Describe the effect(s) on the following system(s) due to t of this system:
   1. T-56 Engine System

5225.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

ENGINE OIL COOLING ELECTRICAL CONTROL SYSTEM

Explain the function(s) of the ENGINE OIL COOLING ELECTRICAL CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-4.

1 Draw a one line block diagram of this system from memory using appropriat symbols and showing all components listed in 5226.2 for use during the rest of this discussion.

SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List or describe the mode(s) of operation.
G. List the protective devices for the component.
H. List the positions and function(s) of each position of this component
I. List the major loads supplied by this component.

	A	B	C	D	E	F	G	H	I
1 Oil cooler control units (2)	X		X	X			X		X
2 Oil cooler door actuators (2)	X	X		X	X	X	X		
3 Oil cooler door control switches (2)	X		X					X	

COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Describe the physical location of this component part within the component.
D. Explain how the component part carries out its function.
E. Describe the major materials used and explain why.
F. List or describe the sources of power to this component part.

5226.3 COMPONENT PARTS (CONT'D)

	A	B	C	D	E	F
.31 Oil cooler control units (2)						
a. Sensor probes	X	X	X	X	X	X
b. Amplifier	X			X		X
c. Flight idle indication relays	X		X	X		X

5226.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this describing:

.41 How a change in oil temperature affects the operation of this system.
.42 How the door actuator control signal is amplified in the control unit.
.43 How the system operates in the automatic mode.
.44 How the flight idle indicator relay receives its power.

5226.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing poi
B. Show or describe the physical location at which the parame displayed for monitoring.
C. State the setpoint(s).
D. State the reason(s) for the setpoint(s) in terms of the ef operating above or below them.

	A	B	C	D
.51 Engine oil temperature	X	X	X	X

5226.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the AC Power Generation System
   2. Operation of the Oil Cooling System
B. Describe the effect(s) on the following system(s) due to t of this system:
   1. T-56 Engine System
   2. Oil Cooling System

5226.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

ENGINE FUEL BOOST PUMP CONTROL SYSTEM

.1 Explain the function(s) of the ENGINE FUEL BOOST PUMP CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-4.

.11 Refer to a standard print of this system during the rest of this discus

.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does f the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).

		A	B	C	D	E
.21	Fuel boost pump switches (2)	X		X		
.22	Aft boost pumps (2)	X	X		X	X
.23	Forward boost pumps (2)	X	X		X	X
.24	Aft boost pump check relays (2)	X		X		X
.25	Forward boost pump check relays (2)	X		X		X
.26	Aft boost pump relays (2)	X		X		X
.27	Forward boost pump relays (2)	X		X		X
.28	Fuel pressure lights (2)	X	X			X
.29	Fuel pressure switches (2)	X	X			
.210	#1 air/ground safety relay	X		X		X

.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within the component.
C. Explain how the component part carries out its function.
D. List or describe the sources of power to this component part.

5227.3 COMPONENT PARTS (CONT'D)

		A	B	C	D
.31	Fuel boost pump switches (2)				
	a. On/off selection		X	X	
	b. Left aft and left forward test selection	X	X	X	
	c. Right aft and right forward test selection	X	X	X	
.32	Aft boost pumps (2)				
	a. Pump	X	X	X	
	b. Motor	X	X	X	X
.33	Forward boost pumps (2)				
	a. Pump	X	X	X	
	b. Motor	X	X	X	X
.34	Fuel pressure switches (2)				
	a. Pressure sensor	X	X	X	
	b. Contacts	X	X	X	

5227.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of th
describing:

.41 How the test function of the fuel boost pump switch causes the pressure lights to go out during test initiate.

.42 How the boost pumps are cooled during boost pump operation.

5227.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing po
B. Show or describe the physical location at which the para
displayed for monitoring.
C. Name the alarm and state the numerical value of the setp
the alarm occurs.
D. State the setpoint(s).
E. State the reason(s) for the setpoint(s) in terms of the
operating above or below them.

		A	B	C	D	E
.51	Fuel Pressure	X	X	X	X	X

5227.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the AC Power Generation System
   2. Operation of the C-2 Aircraft Fuel System

5227.7 SAFETY PRECAUTIONS

A. Discuss the safety precautions unique to this system:
   1. Boost pump operation with aircraft defueled.

FUELING AND FUEL DUMP ELECTRICAL SYSTEM

.1 Explain the function(s) of the FUELING AND FUEL DUMP ELECTRICAL SYSTEM as stated in NAVAIR 01-85WBB-2-4.

.11 Refer to a standard print of this system during the rest of this discus

.2 SYSTEM COMPONENTS - GENERAL
Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does f the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. Discuss the protection provided by this component.
G. List the interlocks associated with the component.

		A	B	C	D	E	F	G
.21	Air ground safety switch	X	X	X			X	
.22	Fuel control air/ground safety relay	X	X	X		X	X	
.23	Fueling valve indicator relays (2)	X	X	X		X		
.24	Fuel tank not full indicator lights (2)	X	X	X	X	X		
.25	Tank precheck switches (2)	X	X	X			X	
.26	High level control valves (2)	X	X	X		X	X	
.27	Fueling shutoff valves (2)	X	X	X			X	
.28	Right air/ground safety switch	X	X	X			X	
.29	Cargo door lock/unlock switches (2)	X	X	X			X	
.210	Fuel dump switch	X	X	X				
.211	Fuel dump light	X	X	X	X	X		
.212	Fuel dump power relay	X	X	X				
.213	Fuel dump shutoff valve	X	X	X	X	X		X
.214	Fuel strainer by-pass indicator lights (2)	X	X	X	X			
.215	Fuel strainer by-pass switches (2)	X	X	X		X		

.3 COMPONENT PARTS
Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Explain how the component part carries out its function.

5228.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of t describing:

.41 How the precheck switch controls the fueling shutoff valve.
.42 The conditions that must be met to energize the "not full"
.43 When the "not full" light will normally be deenergized.

5228.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be disc

5228.6 SYSTEM INTERRELATIONS

A. There are no effects on this system to be discussed.
B. Describe the effect(s) on the following system(s) due t of this system:
    1. High frequency radio transmitter.

5228.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

PROPELLER FEATHERING ELECTRICAL CONTROL SYSTEM

Explain the function(s) of the PROPELLER FEATHERING ELECTRICAL CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-4.

1 Refer to a standard print of this system during the rest of this discussi

2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. Describe the physical location of the sensing points for the componer

		A	B	C	D	E	F
21	Auto feather arming switch	X		X			
22	Negative torque check switch	X		X	X		
23	Condition lever switch (2)	X	X		X		
24	Power lever limit switch (2)	X	X		X		
25	Propeller feather relay (2)	X		X	X	X	
26	Propeller feather motor timer (2)	X		X	X	X	
27	Propeller feather motor (2)	X	X		X	X	
28	Negative torque check relay (2)	X		X	X	X	
29	Thrust sensitive switch (2)	X	X		X		
210	Propeller feather motor relay (2)	X		X	X	X	
211	Negative torque indicator light (2)	X	X		X	X	X

3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Explain how the component part carries out its function.
C. List or describe the sources of power to this component part.

	A	B	C
31 Propeller feather motor timer (2)			
a. Motor timer	X	X	X

Demonstrate an understanding of the internal operation of
describing:

- .41 The path of AC power in this system during the manual mode of operation.
- .42 The path of AC power in this system during the automatic mode of operation.
- .43 How the power lever limit switch energizes the propeller feather relay.
- .44 How the propeller feather motor relay is energized.

5229.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing
B. Name the alarm and state the numerical value of the se
the alarm occurs.
C. State the setpoint(s).
D. State the reason(s) for the setpoint(s) in terms of th
operating above or below them.

	A	B	C	D
.51 Engine torque	X	X	X	X

5229.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the followin
   1. Operation of the T-56 Engine System
B. Describe the effect(s) on the following system(s) due
of this system:
   1. AC Power Generation System

5229.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

PROPELLER SYNCHRONIZING ELECTRICAL CONTROL SYSTEM

Explain the function(s) of the PROPELLER SYNCHRONIZING ELECTRICAL CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-4.

Refer to a standard print of this system during the rest of this discussion.

SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List the positions and function(s) of each position of this component.

	A	B	C	D	E
Rotary actuators (2)	X	X		X	
Propeller alternators (2)	X	X		X	
Phase synchronizer	X		X	X	
Synchronizer switch	X	X		X	X
Fuel governor switches (2)	X	X		X	X

COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Describe the physical location of this component part within the component.
D. Describe the physical location of this component part within the circuit
E. Explain how the component part carries out its function.

	A	B	C	D	E
Rotary actuators (2)					
a. Motor	X		X		X
b. Centrifugal switches (5)	X	X			X

5230.3 COMPONENT PARTS (CONT'D)

	A	B	C	D	E
.32 Phase synchronizer					
a. Left propeller module	X		X	X	X
b. Right propeller module	X		X	X	X
c. Differential module	X		X	X	X
d. Blower	X	X			

5230.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this describing:

.41 How the phase synchronizer stabilizes propeller speed and synchronization.

.42 How the slave propeller is matched to the master propeller.

5230.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing point

B. Show or describe the physical location at which the paramet displayed for monitoring.

C. State the setpoint(s).

D. State the reason(s) for the setpoint(s) in terms of the eff operating above or below them.

	A	B	C	D
.51 Left engine speed	X	X	X	X
.52 Right engine speed	X	X	X	X

5230.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the T-56 Engine System

B. There are no effects on other system due to the operation of this system to be discussed.

5230.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

AIR CONDITIONING ELECTRICAL SYSTEM

.1 Explain the function(s) of the AIR CONDITIONING ELECTRICAL SYSTEM as stated in NAVAIR 01-85WBB-2-2.3.

.11 Refer to a standard print of this system during the rest of this discus

.2 SYSTEM COMPONENTS - GENERAL
Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does f the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.

C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F Describe the modes of control.

		A	B	C	D	E	F
.21	System on-off switch	X	X	X			
.22	Ram air switch	X	X	X			
.23	Automatic temperature control switch	X	X	X			
.24	Man-Auto select switch (2)	X	X	X			
.25	Manual Inc-Dec switch (2)	X	X	X			
.26	Temperature control valves	X	X	X	X	X	X
.27	Air temperature sensing units (2)	X	X	X	X		
.28	Cabin and cockpit control box	X	X	X	X	X	
.29	Inlet air temperature anticipators	X	X	X	X		
.210	Inlet air maximum temperature limiter	X	X	X	X		
.211	Inlet air 250°F temperature switches (2)	X	X	X			
.212	Inlet air 300°F temperature switches (2)	X	X	X			
.213	Propeller feathering relays	X	X			X	

.3 COMPONENT PARTS

A. There are no component parts in this system to be discussed.

.4 PRINCIPLES OF OPERATION
Demonstrate an understanding of the internal operation of this system b describing:

.41 Temperature control signal flow during manual mode of operation.
.42 Temperature control signal flow during automatic mode of operation.

5231.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing po
B. State the setpoint(s).
C. State the reason for the setpoint(s) in terms of the eff
of operating above or below them.

	A	B	C
.51 Ambient cabin temperature	X	X	X

5231.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. During propeller feathering.
B. Describe the effect(s) on the following system(s) due to
of this system:
   1. Cabin Pressurization System
   2. Side Window Defogging Electrical Control System

5231.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

2 CABIN PRESSURIZATION SYSTEM

2.1 Explain the function(s) of the CABIN PRESSURIZATION SYSTEM as stated in NAVAIR 01-85WBB-2-2.3.

.11 Refer to a standard print of this system during the rest of this discus

2.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does f the system.
B. Describe the functional location of the component with respect to t position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List the positions and function(s) of each of the designated switche(s).

		A	B	C	D	E	F
.21	Cabin pressure shutoff valve	X		X	X	X	
.22	Cabin pressure dump switch	X	X		X		X
.23	Cabin pressure safety valve	X		X	X	X	
.24	Cabin pressure outflow regulator	X		X	X	X	
.25	Cabin pressure warning light	X	X		X		
.26	Cabin pressure warning light aneroid switch	X		X	X		X
.27	Cabin pressure dump relay	X		X	X	X	

2.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Explain how the component part carries out its function.

		A	B	C
.31	Cabin pressure outflow regulator			
	a. Head assembly	X	X	X
	b. Reference chamber	X	X	X
	c. Overflow valve	X	X	X

5232.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of th
describing:

- .41 How cabin pressure dumping is accomplished.
- .42 How the cabin pressure warning light is illuminated.
- .43 How the dump relay is controlled.

5232.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing po
B. Show or describe the physical location at which the para
displayed for monitoring.
C. Name the alarm and state the numerical value of the setp
the alarm occurs.
D. State the setpoint(s).
E. State the reason(s) for the setpoint(s) in terms of the
operating above or below them.

	A	B	C	D	E
.51 Cabin air pressure	X	X	X	X	X

5232.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the AC Power Generation System

B. There are no effects on other systems due to the operati
system to be discussed.

5232.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

SIDE WINDOW DEFOGGING ELECTRICAL CONTROL SYSTEM

.1 Explain the function(s) of the SIDE WINDOW DEFOGGING ELECTRICAL CONTRL SYSTEM as stated in NAVAIR 01-85WBB-2-2.3.

.11 Refer to a standard print of this system during the rest of this discus

.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. Discuss the protection provided by this component.
G. List the position and function(s) of each of the designated switches.

	A	B	C	D	E	F	G
.21 Temperature controller	X	X		X	X		X
.22 Temperature sensor	X	X		X			
.23 Maximum temperature switch	X		X	X	X		X
.24 Pressure regulator	X		X	X	X	X	
.25 Temperature control valve	X	X		X	X		
.26 Pressure controller	X	X		X			
.27 Check valve	X	X					X

.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within the component.
C. Explain how the component part carries out its function.

	A	B	C
.31 Pressure controller			
a. Shaft	X	X	X
b. Switches (2)	X	X	X
c. Cam	X	X	X
d. Valve stem assembly	X	X	X
e. Piston	X	X	X

5233.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this
by describing:

.41 How the flow of defogging air is increased.
.42 How an increase in air temperature affects the system.
.43 How a decrease in air temperature affects the system.

5233.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing point
B. State the setpoint(s).
C. State the reason for the setpoint(s) in terms of the effect
of operating above or below them.

	A	B	C
.51 Cabin air temperature	X	X	X

5233.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
  1. Operation of the Air Cycle System
  2. Operation of the AC Power Supply System
  3. Operation of the Air Conditioning Electrical System
B. There are no effects on other systems due to the operation
this system to be discussed.

5233.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

34 WINDSHIELD AND SIDEPANEL ANTI-ICING ELECTRICAL CONTROL SYSTEM

34.1 Explain the function(s) of the WINDSHIELD AND SIDEPANEL ANTI-ICING ELECTRICAL CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-2.3.

.11 Refer to a standard print of this system during the rest of this disc

34.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Show or describe the actual physical location of this component.
C. Describe the sources of power.
D. List or describe the source(s) of control signal(s).
E. List the position and function(s) of each of the designated switches.
F. Describe the "fail" position of the component on loss of power an the reason(s) it fails in this position.

		A	B	C	D	E	F
.21	#1 Dual windshield controller	X	X	X			X
.22	#2 Dual windshield controller	X	X	X			X
.23	Windshield and side panel anti-icing switch	X	X	X		X	X
.24	Right windshield and left side panel anti-icing relay	X	X	X	X		X
.25	Left windshield and right side panel anti-icing relay	X	X	X	X		X
.26	Windshields and side panels	X	X	X	X		X

34.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within the component.
C. Explain how the component part carries out its function.
D. List or describe the source of power to this component part.

		A	B	C	D
.31	#1 Dual Windshield controller				
	a. Relays	X	X	X	X
	b. Amplifier	X	X	X	X
.32	#2 Duel Windshield controller				
	a. Relays	X	X	X	X
	b. Amplifier	X	X	X	X

.33 Windshields and side panels

5234.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of describing:

.41 How the temperature control signal is routed to the power
.42 How the windshield and sidepanel power relays are energiz
.43 How temperature unbalances the bridge in the power amplif
.44 How an electrical signal is amplified in this system.

5234.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing
B. State the setpoint(s).
C. State the reason for the setpoint(s) in terms of the above or below them.

	A	B	C
.51 Windshield and side panel temperature	X	X	X

5234.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the followi
   1. Operation of the AC Power Generation System
B. There are no effects on other systems due to the oper system to be discussed.

5234.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system

PROPELLER ANTI-ICING ELECTRICAL CONTROL SYSTEM

Explain the function(s) of the PROPELLER ANTI-ICING ELECTRICAL CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-2.3.

1 Refer to a standard print of this system during the rest of this discussi

2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. Discuss the protection provided by this component.

		A	B	C	D	E	F
21	Propeller control switch	X		X	X		
22	Advisory lights (2)	X		X		X	
23	Propeller deice timer	X		X	X		
24	Propeller ice control power relay	X		X		X	
25	Blade cuff deice relay	X		X		X	
26	Spinner island deice relay	X		X		X	
27	Propeller heater elements (6)	X	X		X		X
28	#2 air/ground safety switch	X	X	X	X	X	X

3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Describe the physical location of this component part within the component.
D. Explain how the component part carries out its function.
E. List or describe the sources of power to this component part.

5235.3 COMPONENT PARTS (CONT'D)

		A	B	C
.31	Propeller deice timer			
	a. Motor	X		X
	b. Reduction gear	X		X
	c. Rotating contacts	X	X	
.32	Propeller heater elements (6)			
	a. Forward spinner anti-ice element	X	X	
	b. AFT spinner deice element	X	X	
	c. Blade deicing elements (4)	X	X	

5235.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of
describing:

.41 How the following relays are controlled by the propeller
deice timer:
- a. Spinner island deice relay
- b. Blade cuff deice relay
- c. Propeller ice control power relay

.42 How the advisory lights become energized

5235.5 MAJOR PARAMETERS

A. State the setpoint(s).

B. State the reason(s) for the setpoint(s) in terms of t
operating above or below them.

		A	B
.51	Heater timer	X	X

5235.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the followi
  1. Operation of the AC Power Generation System

B. Describe the effect(s) on the following system(s) due
of this system:
  1. Propeller System

5235.7 SAFETY PRECAUTIONS

A. Discuss the safety precautions unique to this system:
  1. Operation of Propeller Anti-icing Electrical Cont
with the aircraft on the deck

ENGINE AND AIR INLET DUCT ANTI-ICING ELECTRICAL CONTROL SYSTEM

1 Explain the function(s) of the ENGINE AND AIR INLET DUCT ANTI-ICING ELECTRICAL CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-4.

11 Refer to a standard print of this system during the rest of this discussi

2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Describe the sources of power.
D. List or describe the source(s) of control signal(s).
E. Describe the "fail" position of the component on loss of power and th reason(s) it fails in this position.
F. List the ratings of this component.

		A	B	C	D	E	F
21	Engine anti-icing switch	X	X	X			
22	Anti-icing air shutoff valves (2)	X	X	X	X	X	
23	Anti-icing solenoid valves (2)	X	X	X	X	X	
24	Air pressure relief valves (2)	X	X	X	X		X

3 COMPONENT PARTS

A. There are no component parts in this system to be discussed.

4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this system by describing:

41 How the anti-icing air is obtained.

5 MAJOR PARAMETERS

A. There are no major parameters in this system to be discussed.

6 SYSTEM INTERRELATIONS

A. There are no system interrelations to be discussed.

7 SAFETY PRECAUTIONS

WING AND TAIL DEICING ELECTRICAL CONTROL SYSTEM

Explain the function(s) of the WING AND TAIL DEICING ELECTRICAL CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-2.3.

Refer to a standard print of this system during the rest of this discussio

SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List the positions and function(s) of each position of this component.

	A	B	C	D	E	F
Wing and tail deicing switch	X		X	X		X
Electronic timer	X		X	X		
Distribution valve	X		X	X	X	X
Deicing boots	X	X			X	

COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within the component.
C. Explain how the component part carries out its function.
D. List or describe the sources of power to this component part.

	A	B	C	D
Electronic timer				
a. Rotary switch	X	X	X	X
b. Electronic timing circuit	X	X	X	X
c. Relay	X	X	X	X
d. Transistor	X	X	X	X

5237.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this describing:

- .41 The inflation/deflation sequence of the deicing boots.
- .42 How the deicing boot inflation sequence is controlled by the electronic timer.

5237.5 MAJOR PARAMETERS

- A. Show or describe the physical location of the sensing poir
- B. Show or describe the physical location at which the parame displayed for monitoring.
- C. State the setpoint(s).
- D. State the reason(s) for the setpoint(s) in terms of the ef operating above or below them.

	A	B	C	D
.51 Inflation/deflation timing	X	X	X	X

5237.6 SYSTEM INTERRELATIONS

- A. Describe the effect on this system due to the following:
  - 1. Operation of the AC Power Generation System
- B. Describe the effect(s) on the following system(s) due to t of this system:
  - 1. Aircraft Airframe System

5237.7 SAFETY PRECAUTIONS

- A. There are no safety precautions unique to this system.

NOSE WHEEL STEERING, TOW LINK AND ARRESTING HOOK RAISE ELECTRICAL CONTROL SYSTEM

.1 Explain the function(s) of the NOSE WHEEL STEERING, TOW LINK AND ARRESTING HOOK RAISE ELECTRICAL CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-2.2.

.11 Refer to a standard print of this system during the rest of this discus

.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does f the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. List the positions and function(s) of each position of this compone

	A	B	C	D	E	F
.21 Tow link unsafe caution light	X	X				
.22 Tow link unsafe switch	X	X		X		X
.23 Arresting hook handle	X	X				
.24 Arresting hook bypass switch	X		X	X		X
.25 Arresting hook bypass relay	X		X	X	X	
.26 Arresting hook warning flasher	X		X	X	X	
.27 Arresting hook position switch	X	X				X
.28 Arresting hook position indicator relay	X		X	X	X	
.29 #1 air/ground safety relay	X		X	X	X	
.210 Left strut compression switch	X	X				X
.211 Arresting hook emergency dump valve	X		X	X	X	
.212 Nose wheel steering handle	X	X		X		X

.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the physical location of this component part within the component.
C. Explain how the component part carries out its function.

5238.3 COMPONENT PARTS (CONT'D)

D. List or describe the sources of power to this component part

		A	B	C	D
.31	Arresting hook handle				
	a. Arresting hook handle position switches (2)	X	X	X	X
	b. Arresting hook handle warning light	X	X	X	X
.32	Nose wheel steering handle				
	a. Switch	X	X	X	
	b. Valve	X	X	X	X

5238.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this s describing:

.41 How the nose wheel steering valve is energized.
.42 The path of AC power to the arresting hook warning light.
.43 The path of AC power from the strut compression switch to the nose wheel steering valve.
.44 How the down position of the arresting hook affects the nose wheel steering.

5238.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be discussed

5238.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the AC Power Generation System
   2. Operation of the Main Hydraulic System
   3. Operation of the Read Hydraulic System
B. Describe the effect(s) on the following system(s) due to the of this system:
   1. Angle of Attack System

5238.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

9 WINGFOLD SYSTEM

9.1 Explain the function(s) of the WINGFOLD SYSTEM as stated in NAVAIR 01-85WBB-2-2.

.11 Refer to a standard print of this system during the rest of this discu

9.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below

A. Explain the function(s) of the component in terms of what it does the system.
B. Describe the functional location of the component with respect to position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. Discuss the protection provided by this component.
G. List the positions and function(s) of each position of this compon

		A	B	C	D	E	F	G
.21	#4 Air/ground safety relay	X		X			X	X
.22	Wingfold selector valve	X		X	X	X		X
.23	Wing spread pressure release valves (2)	X		X	X	X		X
.24	Wingfold control lever	X		X				X
.25	Flap handle	X		X				X
.26	Wingfold flags (2)	X	X				X	
.27	Wingfold flag relay	X		X		X		
.28	Flap control central gear box	X		X				

9.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within th component.
C. Describe the physical location of this component part within the component.
D. Explain how the component part carries out its function.

		A	B	C	D
.31	Wingfold control lever				
	a. Wingfold lock lever	X	X		X
	b. Wingfold control lever central switch	X		X	X

Demonstrate an understanding of the internal operation of th
describing:

.41 How the wingfold control lever actuates the wingfold select

5239.5 MAJOR PARAMETERS

A. Show or describe the physical location at which the par
displayed for monitoring.
B. State the setpoint(s).
C. State the reason(s) for the setpoint(s) in terms of the
operating above or below them.

	A	B	C
.51 Flaps	X	X	X

5239.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following
   1. Aircraft Flight Hydraulic System operation
   2. Aircraft Combined Hydraulic System operation
   3. AC Generation System
B. Describe the effect(s) on the following system(s) due t
of this system:
   1. Flap and Aileron Droop Mechanical System
   2. Wingfold and Automatic Jury Strut Mechanical System

5239.7 SAFETY PRECAUTIONS

A. Discuss the safety precautions unique to this system:
   1. Flap position for wingfold

240 STANDBY TRIM SYSTEM

240.1 Explain the function(s) of the STANDBY TRIM SYSTEM as stated in NAVA 01-85WBB-2-2.4.

.11 Refer to a standard print of this system during the rest of this dis

240.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it doe for the system.
B. Show or describe the actual physical location of this component.
C. Describe the sources of power.

	A	B	C
.21 Control wheels (2)	X	X	X
.22 Trim control panel	X	X	X
.23 Emergency trim relay #1	X	X	X
.24 Emergency trim relay #2	X	X	X
.25 Emergency trim relay #3	X	X	X

5240.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function or the functions of the component part in t of what it does for the component.
B. Describe the functional location of this component part within t component.
C. Describe the physical location of this component part within the component.
D. Explain how the component part carries out its function.

	A	B	C	D
.31 Control wheels (2)				
a. Elevator trim emergency stop switch	X	X		X
.32 Trim control panel				
a. Elevator trim standby switch	X		X	X

5240.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this syst describing:

.41 How this system disengages normal trim operation.
.42 How the #1 relay is energized.
.43 How the #2 relay is energized.
.44 How the #3 relay is energized.

5240.5 MAJOR PARAMETERS

5240.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following
   1. Operation of the AC Power Generation System

B. Describe the effects on the following systems due to th
   of this system:
   1. Automatic Flight Control System
   2. Trim Position Instrument System
   3. Normal Trim System

5240.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

NORMAL AND EMERGENCY FLAP ELECTRICAL CONTROL SYSTEM

1 Explain the function(s) of the NORMAL AND EMERGENCY FLAP ELECTRICAL CONTROL SYSTEM as stated in NAVAIR 01-85WBB-2-2.

11 Refer to a standard print of this system during the rest of this discuss

2 SYSTEM COMPONENTS - GERERAL
Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to it position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. List or describe the source(s) of control signal(s).
E. List or describe the mode(s) of operation.
F. Discuss protection provided by this component.

	A	B	C	D	E	F
21 Central gear box assembly	X	X			X	
22 Flap actuators	X	X		X	X	
23 Aileron droop actuators	X	X		X	X	
24 Flap selector valve	X		X	X		
25 Flap brake release valve	X	X		X		X
26 Load limiters (16)	X	X				X
27 Flap handle	X		X			
28 Flap control relays	X		X	X		
29 Asymmetry switches (2)	X	X				X
210 Flap position transmitter	X		X			
211 Flap position indicator	X		X	X		

3 COMPONENT PARTS
Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Describe the physical location of this component part within the component.
D. Explain how the component part carries out its function.

	A	B	C	D
31 Central gear box assembly				
a. Electric motor	X		X	X

5241.3 COMPONENT PARTS (CONT'D)

	A	B	C	D
.32 Load limiters (16)				
a. Clutch assembly	X	X		X
.33 Flap handle				
a. Limit switches (6)	X	X		X

5241.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this s describing:

.41 The path of DC power from the left transformer rectifier bus th the asymmetry switches to the flap selector valve.

.42 The flow path of AC power from the left generator AC bus to the flap motor and brake.

.43 The electrical flow path from the flap selector switch to the f valve.

.44 Electrical operation of the flap release valve.

5241.5 MAJOR PARAMETERS

A. Show or describe the physical location of the sensing point

B. Show or describe the physical location at which the paramet displayed for monitoring.

C. State the setpoint(s).

D. State the reason for the setpoint(s) in terms of the effect operating above or below them.

	A	B	C	D
.51 Flap position transmitter	X	X	X	X

5241.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Operation of the Wing Fold System
   2. Loss of AC electrical power

B. There are no effects on other systems due to the operation system to be discussed.

5241.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

Explain the function(s) of the CATAPULT EXTENDER ELECTRICAL SYSTEM as stated in NAVAIR 01-85WBB-2-2.2.

1 Refer to a standard print of this system during the rest of this discussi

SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does for the system.
B. Describe the functional location of the component with respect to its position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F. Discuss the protection provided by this component.
G. List the interlocks associated with the component.

	A	B	C	D	E	F	G
1 Catapult extender solenoid valve (2)	X	X	X	X	X		X
2 Catapult extender switches (2)	X	X	X		X		
3 Catapult extend/hook bypass switch	X	X	X				
4 Fuel control air/ground safety relay	X	X	X		X	X	
5 Catapult extend caution light	X	X	X	X	X		
6 Catapult extender time delay relays (2)	X	X	X		X		
7 Extender warning relay	X	X	X		X		
8 No.2 air/ground safety relay	X	X	X		X	X	
9 No.3 air/ground safety relay	X	X	X		X	X	

COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Explain how the component part carries out its function.

	A	B	C
1 Catapult extend/hook bypass switch			
a. Holding solenoid	X	X	X

PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of this system by describing:

5242.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be discussed.

5242.6 SYSTEM INTERRELATIONS

A. Describe the effect on this system due to the following:
   1. Tow Link System

B. There are no effects on other systems due to the operation of
   system to be discussed.

5242.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

43 CARGO DOORS ELECTRICAL SYSTEM

43.1 Explain the function(s) of the CARGO DOORS ELECTRICAL SYSTEM as stated in NAVAIR 01-85WBB-2-2.

.11 Refer to a standard print of this system during the rest of this discus

43.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does the system.
B. Describe the functional location of the component with respect to position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).
F Describe the modes of control.
G. List the protective device(s) for the component.
H. List the interlocks associated with the component.

		A	B	C	D	E	F	G	H
.21	Cargo doors selector valve	X	X	X			X	X	X
.22	Cargo doors power control switch	X	X	X	X				
.23	Cargo doors operate switch	X	X	X					
.24	Cargo doors open light	X	X	X	X	X			
.25	Cargo doors unlocked light	X	X	X	X	X			
.26	Cargo doors and ramp unlock/lock switches (11)	X	X	X					
.27	Interlock switches (3)	X	X	X					
.28	Ramp level position switch	X	X	X					
.29	Main entrance door lock/unlock switch	X	X	X					

43.3 COMPONENT PARTS

Discuss the designated items for each component part listed below:

A. Explain the function(s) of the component part in terms of what it does for the component.
B. Describe the functional location of this component part within the component.
C. Explain how the component part carries out its function.-
D. List or describe the sources of power to this component part.

		A	B	C	D
.31	Cargo doors selector valve				
	a. Cargo door open/close solenoid	X	X	X	X

5243.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be discussed.

5243.6 SYSTEM INTERRELATIONS

A. There are no effects on this system to be discussed.
B. Describe the effects on the following systems due to the operatio of this system:
   1. Fuel Dump System

5243.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

4 AUXILIARY POWER PLANT (A.P.P.) ELECTRICAL SYSTEM

4.1 Explain the function(s) of the AUXILIARY POWER PLANT (A.P.P.) ELECTRICA SYSTEM as stated in NAVAIR 01-85WBB-2-4.

.11 Refer to a standard print of this system during the rest of this discus

4.2 SYSTEM COMPONENTS - GENERAL

Discuss the designated items for each component listed below:

A. Explain the function(s) of the component in terms of what it does f the system.
B. Describe the functional location of the component with respect to i position in the system and the reason(s) for its location in this position.
C. Show or describe the actual physical location of this component.
D. Describe the sources of power.
E. List or describe the source(s) of control signal(s).

		A	B	C	D	E
.21	Battery	X	X	X		
.22	Battery charge resistor	X	X	X	X	
.23	Blocking diode	X	X	X		
.24	Battery charge relay	X	X	X	X	
.25	Left engine ground start relay	X	X	X		
.26	APP power stop/run switch	X	X	X		
.27	Start indicator light	X	X	X		
.28	Loading indicator light	X	X	X		
.29	APP start switch	X	X	X		
.210	APP tachometer indicator	X	X	X	X	X
.211	APP engine exhaust indicator	X	X	X	X	X
.212	Starter motor relay	X	X	X		X
.213	Fuel solenoid holding relay	X	X	X		X
.214	Starting and ignition holding relay	X	X	X		X
.215	Thermocouple	X	X	X		
.216	Tachometer generator	X	X	X		
.217	Starter motor	X	X	X	X	
.218	Solenoid fuel shut off valve	X	X	X		X
.219	Hour meter	X	X	X	X	
.220	Centrifugal switch assembly	X	X	X		
.221	Oil pressure switch	X	X	X		
.222	Start counter	X	X	X	X	
.223	Ignition coil	X	X	X	X	
.224	Ignitor	X	X	X	X	
.225	Acceleration limited solenoid valve	X	X	X		X
.226	Enbleed shutoff and load control	X	X	X		
.227	Solenoid valve	X	X	X		

5244.3 COMPONENT PARTS

A. There are no component parts in this system to be discus

5244.4 PRINCIPLES OF OPERATION

Demonstrate an understanding of the internal operation of th describing:

.41 The sequence of events that occur electrically during the s

5244.5 MAJOR PARAMETERS

A. There are no major parameters in this system to be disc

5244.6 SYSTEM INTERRELATIONS

A. There are no effects on this system due to the operatio systems to be discussed.

B. There are no effects on other systems due to the operat system to be discussed.

5244.7 SAFETY PRECAUTIONS

A. There are no safety precautions unique to this system.

1 WATCHSTATION - INSTRUMENT/ELECTRICAL ORGANIZATIONAL MAINTENANCE TECHNICIAN

1.1 MAINTENANCE INSTRUCTIONS

For the maintenance instructions listed below:

A. Describe the sequence of steps of this procedure.
B. Explain the reasons for each step of this procedure.
C. Describe the assistance required while performing this procedure.
D. Discuss the parameter indication(s) that must be monitored.
E. Discuss the safety precautions that must be observed.
F. Describe indications that would be observed during the use of this procedure. (Lights, breakers, bus-ties, valves, meters, gauges, et
G. Perform the steps of this procedure.

	A	B	C	D	E	F	G
.11 Calendar inspections	X	X	X				X
.12 Special inspections	X	X	X				X
.13 Operational check out of the following:							
a. Power system	X			X	X	X	X
b. Lighting systems	X					X	X
c. Instrument systems	X			X		X	X
d. Navigation system	X			X		X	X
e. Flight control system	X		X	X		X	X
.14 Corrosion prevention and treatment of electrical connecters	X	X					X
.15 Calibrate the following:							
a. Angle of attack indicator	X			X			X
b. Altimeter	X	X		X			X
c. Fuel quantity indicator	X	X		X			X
d. Vertical velocity indicator	X			X			X
e. Turn and slip indicator	X			X			X
.16 Adjust the following for proper indication:							
a. Up lock switch	X		X	X	X	X	X
b. Down lock switch	X		X	X	X	X	X
c. Tow link switch	X		X	X		X	X
d. Flaps position transmitter	X	X	X	X		X	X
e. Air/ground safety switch	X	X	X	X	X	X	X
f. Tail hook position switch	X		X	X	X	X	X
.17 Bias the following for proper operation:							
a. Air navigation computer	X	X	X	X			X
.18 Remove and replace the following types of indicators:							
a. Electrical	X						X
b. Pneumatic	X						X
.19 Remove and replace the following transmitters:							
a. Pressure	X						X
b. Electrical	X						X
.110 Remove and replace a fuel quantity probe	X				X		X

5301.1 MAINTENANCE INSTRUCTIONS (CONT'D)

	A	B	C	D	E	F
.112 Remove and replace the following lights (cont'd):						
d. Utility	X					
e. Caution and advisory	X					
.113 Remove and replace the following actuators:						
a. Oil cooler door actuator	X	X				
b. Pitch "Q" feel actuator	X	X				
.114 Remove and replace the following controllers:						
a. Fire detection	X					
b. Oil cooler door	X					
c. Temperature control box	X					
.115 Remove and replace the following:						
a. Oil level sensor	X					
b. Fire detection element	X					
c. AC generator	X					
d. Voltage regulator	X					
e. Transformer rectifier	X					
f. Supervisory control panel	X					
g. Air data computer	X					
h. Air navigational computer	X					
i. Attitude indicator	X					
j. Roll and pitch gyro	X					
k. MA-1 Gyro amplifier	X					
l. MA-1 Compass adapter	X					
m. Gyroscope rate switch	X					
.116 Remove and replace the battery	X					
.117 Remove and replace the angle of attack probe	X					

5301.2 INFREQUENT and/or ABNORMAL MAINTENANCE OPERATIONS

For the infrequent and/or abnormal maintenance operations list below:

A. Describe the sequence of steps of this procedure.
B. Explain the reasons for each step of this procedure.
C. Describe the assistance required while performing this pro
D. Discuss the communications that must be established and/or utilized.
E. Discuss the safety precautions that must be observed.
F. Describe indications that would be observed during the use procedure. (lights, breakers, bus-ties, valves, meters,
G. Perform the steps of this procedure when practicable.

	A	B	C	D	E
.21 Calibrate MA-1 Compass System	X	X	X	X	X
.22 Check engine fire detector elements	X	X			
.23 Remove and replace:					

5301.2 INFREQUENT and/or ABNORMAL MAINTENANCE OPERATIONS (cont'd)

		A	B	C	D	E	F	G
.23	Remove and replace (cont'd):							
	f. External power receptacle	X						X
	g. Electrical relay (solder type)	X	X			X		X
	h. Accelerometer	X	X			X		X
	i. Rate gyro package	X	X			X		X
	j. Magnetic compass (standby)	X						X
	k. MA-1 flux valve transmitter	X	X			X		X
	l. Pitot tube	X						X
	m. Control wheel	X						X
	n. Trim switch (control wheel)	X						X
	o. Lighting auto transformer	X						X
	p. Asymmetry switch	X			X			X
	q. Dual windshield controller	X						X
	r. Equipment cooling control amplifier	X						X
	s. Low fuel warning sensor	X	X			X		X
	t. Oil cooler temperature bulb	X	X					X
	u. Wing fold flag	X						X
	v. Prop and deicer timer	X						X
	w. Arresting hook warning flasher	X						X
	x. Two degree stop actuator	X	X			X		X
.24	Electrically hookup the following:							
	a. Rudder actuator	X						X
	b. Aileron actuator	X						X
	c. Elevator actuator	X						X
	d. Engine	X						X
	e. Propeller	X						X
	f. Windshield	X						X
	g. Fuel boost pump	X	X			X		X

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Page # ______________________________

Remarks/Recommendations (Use additional sheets if necessary)

Suggestions for improving this Qual Standard